2011 Annual Report

St. Regis Paper Company Site
Cass Lake, Minnesota

Prepared for
International Paper

July 2012

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1.0 Introduction

This annual report has been prepared to fulfill the requirements of Section IX, Paragraphs 33, 34, and 35 of the January 24, 1995 Administrative Order (Order) issued by the U.S. Environmental Protection Agency pursuant to Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 as amended, (CERCLA) 42 U.S.C. § 9601 (a) for the St. Regis Paper Company Site.

The January 24, 1995 Order designated the following operable units at the Site:

- OU1 (Treating Facility Operable Unit)
- OU2 (Containment Vault Operable Unit)
- OU3 (City Dump Pit Operable Unit)

These operable units are shown on Figure 1. Construction and implementation of the response actions at the Site began in 1985 and were completed in 1987. Operation and maintenance of the selected response actions are continuing.

This annual report summarizes the results of routine monitoring and maintenance activities at the Site. The activities are recommended in section 5.0 of the 2010 Annual Report.

2.0 Monitoring Activities

Monitoring at the Site in 2011 was conducted in accordance with and as required by the following permits and plans:

- The January 24, 1995 Administrative Order (Order) issued by the U.S. Environmental Protection Agency pursuant to Section 106(a) of CERCLA, 42 U.S.C.§ 9601 (a).
- Recommendations in the 2010 Annual Report.
- Approved Quality Assurance Project Plan, Revision 2, St. Regis Paper Company Sites, (August 28, 2006).

The geologic and hydrogeologic conditions at the Site are described in the following reports:

- Remedial Investigation/Alternatives Report (April 1985).
- Supplemental Remedial Investigation Report (July 1985).
- Groundwater Flow Model, Model Construction (May 1996).
- Hydraulic Capture Zone Report (Revised March 2008)
- Technical Memorandum, Pre-Aquifer Test Investigation at the LLBO DRM Fish Hatchery, St. Regis Paper Company Site, Cass Lake, Minnesota. Dated September 4, 2009
- Fish Hatchery Wells Aquifer Test Report, St. Regis Paper Company Superfund Site, Cass Lake, Minnesota. Prepared for International Paper. Dated January 8, 2010.

Monitoring wells at the Site are identified according to the following numbering system, which is based on the screened interval of the well:

Screened Interval	Well Number		
	OU1	OU2	OU3
Monitoring Wells			
Surficial Aquifer – Top	1XX	124-130	21XX
Surficial Aquifer – Base	2XX	2XX	22XX
Lower Aqufier	3XX	3XX	23XX

Screened Interval	Well Number		
Extraction Wells Surficial Aquifer	4XX	--	24XX
Observation/Scavenger Wells Surficial Aquifer	5XX	--	25XX

The monitoring wells at OU2 (Wells 124 through 130) are screened throughout the saturated thickness of the surficial aquifer.

The following sections summarize the monitoring activities conducted in 2011 at each of the operable units. These monitoring activities consisted of measuring groundwater levels, collecting and analyzing groundwater and surface water samples, and inspecting the containment vault. Tables 1 through 5 summarize the 2011 sampling events, the locations monitored during each sampling event and the specific analytical parameters. The locations of the groundwater and surface water monitoring stations are shown on Figure 2.

2.1 OU1 - Treating Facility Operable Unit

2.1.1 Activities

International Paper is authorized to appropriate up to 131 x 10^6 gallons per year (about 250 gpm) at OU1 as detailed in Water Appropriation Permit # 86-3108. The maximum pump capacity and approximate 2011 annual average pumping rate for each extraction well are compared to 2009 and 2010 annual average rates in Table 6. In addition, the initial pumping rate and pumping rates included in groundwater flow models are also summarized in Table 6.

- W401 is operating at about an annual average rate of 5.4 gpm, and the extraction rate is consistent over the last three years and consistent with previous groundwater flow models. Immediate maintenance activities are not necessary. The extraction rate should be maintained at about 5 gpm. W401 was installed to remove contaminant mass from the groundwater near the former treating plant area and has minimal affect on the overall capture zone of the extraction system. Typical PCP concentrations in samples from W401 are on the order of 2,000 µg/L.

- W402 is operating at about an annual average rate of 4.5 gpm, and the extraction rate is consistent over the last three years and consistent with previous groundwater flow models. Immediate maintenance activities are not necessary. The extraction rate should be maintained

at about 5 gpm. W402 was installed to remove contaminant mass from the groundwater near the former wastewater ponds and has minimal affect on the overall capture zone of the extraction system. Typical PCP concentrations in samples from W402 are on the order of 1,000 µg/L.

- W403 is located on the north end of the line of extraction wells and is operating at about an average rate of 11.3 gpm. Its extraction rate has been increased over the last three years from 5.8 gpm in 2009 to its current rate in an attempt to extend the capture zone further north to encompass W105R. The extraction rate should be increased to about 15 gpm (if possible) to further expand the capture zone northward. Typical PCP concentrations in samples from W403 are on the order of 500 µg/L.

- W404 is located south of W403 in the line of extraction wells. This extraction well was restarted in September 2009 to increase groundwater extraction from the north end of the line of extraction wells and is currently pumping at about 11.8 gpm. The extraction rate should be maintained at about 10 gpm. Immediate maintenance activities are not necessary. Typical PCP concentrations in samples from W404 are on the order of 1,000 µg/L.

- W409 is located south of W404 in the line of extraction wells and is operating at about 21.2 gpm and the extraction rate is higher than previous years. Immediate maintenance activities are not necessary. The extraction rate should be maintained at about 20 gpm. Typical PCP concentrations in samples from W409 are on the order of 3,000 µg/L.

- W405 is located south of W409 and is operating at about 11.4 gpm, which is about the same as the initial pumping rate for this extraction well, but substantially lower than the annual average extraction rates in 2009 and 2010. The extraction rate should be increased to about 20 gpm (if possible). Samples from this well, typically have the highest PCP concentrations (on the order of 7,000 µg/L).

- W410 is located south of W405 in the line of extraction wells and is operating at about 4.3 gpm, which is consistent with previous groundwater flow models. Immediate maintenance activities are not necessary. The extraction rate should be maintained at about 5 gpm. Typical PCP concentrations in samples from this well are on the order of 50 µg/L, indicating that this extraction well is near the southern limit of the contaminant plume.

- W406 is located south of W410 and is no longer operational (terminated in May 2010). The well was producing sand at the water treatment system. It is suspected that the well screen has collapsed or otherwise allowing sand to enter the well. PCP has not been detected in samples from this extraction well since 1997 (see Table 25), so even if operational, it would not be extracting contaminated groundwater. Additional groundwater quality data will be collected from this well in 2012 to confirm PCP and PAH compound concentrations.

- W407 is located south of W406 and is the furthest south well in the line of extraction wells. As of August 2010, this well is no longer operational due to electrical power supply issues. PCP has not been detected in the samples collected this extraction well (see Table 25), so even if operational, it would not be extracting contaminated groundwater. Additional groundwater quality data will be collected from this well in 2012 to confirm PCP and PAH compound concentrations.

- W408 is located east of the line of extraction wells. As of February 2009, this well is no longer operational due to a plugged forcemain. The forcemain at the water treatment building contained a cemented deposit that may be blocking water flow through the pipe. As discussed during the March meeting with EPA, International Paper will inspect the forcemain at the wellhead to evaluate whether the deposit is localized to the water treatment end or is present at the wellhead. Additional groundwater quality data will be collected from this well in 2012 to confirm PCP and PAH compound concentrations. In addition, the results of the upcoming OU1 vertical aquifer sampling scheduled for July 2012 will also provide information as to whether W408 needs to be brought back on line or possibly moved to a more optimal location.

The OU1 extraction system was maintained as described in the Operation and Maintenance Plan, St. Regis Paper Company Site, Cass Lake, Minnesota, dated March, 1995. Maintenance activities included:

- W409 – Repaired flow meter and strainer in January and March.
- W405 – Replaced pump and pressure gauge, cleaned forcemain, repaired flow meter and added an in-line strainer in May.

Table 7 presents the average pumping rate by month for each extraction well, along with the monthly precipitation.

2.1.2 Water Levels

Water levels were measured at the OU1 monitoring wells, piezometers, and staff gages in May and October, 2011 and are summarized in Table 10. No wells were frozen during the May or October data collection events.

2.1.3 Water Quality

Water samples were collected from the OU1 monitoring wells in May 2011. Groundwater samples were collected from monitoring wells screened in the surficial aquifer (top and bottom) and the lower aquifer. All samples were analyzed for pentachlorophenol (PCP) and the polyaromatic hydrocarbon (PAH) compounds listed in Table 4. Samples from monitoring wells 215 and 220 were analyzed for the extended list PAHs (Table 5) as described in the 2011 Monitoring Plan.

In addition, water samples were collected from monitoring wells included in the quarterly monitoring program (212, 213, and 220) in March, May, August and October 2011. The water column in W212 was frozen in March so no groundwater sample could be collected during that event. These samples were analyzed for benzene, toluene, ethyl benzene and xylene, diesel range organics (DRO), and dioxins/furans as well as PCP and PAHs.

Surface water samples were collected on May 3, 2011 at the north end (CL-N) and south end (CL-S) of the channel connecting Cass Lake and Pike Bay. Surface water samples are collected by wading into the channel (about 2 feet from the water edge) and collecting a grab sample near the bed sediments (4 to 6-inches above the bed sediments). A laboratory supplied sample container is lowered into the water column (upside down). The container is slowly tilted and allowed to fill. The container is retrieved and the sample is transferred to a second laboratory supplied sample container. The water is transferred to keep the sample container clean. The water is not filtered during the transfer. These samples were analyzed for PCP.

The locations of the OU1 monitoring stations are shown on Figure 2.

2.2 OU2 - Containment Vault Operable Unit

2.2.1 Activities

The containment vault was inspected on May 3 and October 12, 2011. Results of the inspections are discussed in Section 3.3 of this report. Vault dewatering activities continued as described in the September 17, 2001 Updated Leachate Disposal Plan and as discussed in Section 3.4 of this report.

2.2.2 Water Levels

Water levels were measured at the OU2 monitoring wells in May and October 2011 and are summarized in Table 10.

2.2.3 Water Quality

The vault monitoring wells including the lower aquifer monitoring wells were sampled in May, and the samples were analyzed for PCP and the PAH compounds in Table 5. The locations of the OU2 monitoring stations are shown on Figure 2.

2.3 OU3 - City Dump Pit Operable Unit

2.3.1 Activities

International Paper is authorized to appropriate up to 32 x 106 gallons per year (about 60 gpm) at OU3 as detailed in Water Appropriation Permit # 87-3285. The maximum design pump capacity and approximate 2011 annual average pumping rate for each extraction well are compared to 2009 and 2010 annual average rates in Table 8. In addition, the initial pumping rate and pumping rates included in groundwater flow models are also summarized in Table 8. Overall the annual average extraction rate at OU3 was increased from 35.2 gpm in 2010 to 39.1 gpm in 2011.

- W2401 was operated at about an annual average rate of 5.0 gpm, and the extraction rate is lower than previous years. Maintenance is needed to increase extraction rate to about 10 gpm (if possible). Well screen will be cleaned and pump efficiency will be evaluated. Typical PCP concentrations in samples from W2401 are on the order of 4,500 µg/L.

- W2402 was operated at about an annual average rate of 17.9 gpm, and the extraction rate is higher than previous years and higher than the rate in the previous groundwater flow models. The extraction rate was increased from 12.6 gpm in 2010 to 17.9 gpm in 2011 in an attempt to expand the capture zone further east in the direction of W2140. PCP and naphthalene concentrations in the sample from W2140 are lower than previous samples from W2140. The

extraction rate should be increased to and maintained at about 20 gpm. Typical PCP concentrations are on the order of 200 µg/L.

- W2403 was operated at about an annual average rate of 16.2 gpm, and the extraction rate is higher than previous years and consistent with previous groundwater flow models. The extraction rate was increased from 14.7 gpm in 2010 to 16.2 gpm in 2011 in an attempt to expand the capture zone further south in the direction of Fox Creek. The extraction rate should be maintained at about 20 gpm. Typical PCP concentrations in samples from W2403 are on the order of 2,000 µg/L.

The OU3 extraction system was maintained as described in the Operation and Maintenance Plan, St. Regis Paper Company Site, Cass Lake, Minnesota, dated March 1995. Maintenance activities included:

- W2401 – Pump quit. Electrical system repaired in March.
- W2401 – Pump quit. Replaced parts in electrical panel in April.
- W2402 – Pump quit. New pump installed in August.

Table 7 presents the average pumping rate by month for each OU3 extraction well, along with the monthly precipitation.

2.3.2 Water Levels

Water levels were measured at OU3 monitoring wells and staff gages at OU3 in May and October 2011 and are summarized in Table 10. No wells were frozen during the May or October data collection events. Staff gages were installed in Fox Creek during the aquifer tests conducted at the Fish Hatchery's production wells in 2009. The temporary staff gage in Fox Creek near Highway 371 was removed after the aquifer test. The staff gage installed in Fox Creek at the County Road 147 bridge is no longer present so the only elevation for Fox Creek is at W2127. A measuring point will be established on the County Road 147 bridge to allow ongoing measurement of the surface water elevation at this location.

2.3.3 Water Quality

In May, groundwater samples were collected from OU3 monitoring wells screened in the surficial aquifer (top and bottom) and lower aquifer. Samples were analyzed for PCP and the PAH compounds in Table 4. A sample from monitoring well W2128 was also analyzed for the extended

list PAHs in Table 5 as described in the 2011 Monitoring Plan. In addition, a sample from well 2106 was analyzed for dioxins/furans.

Water samples were collected from monitoring wells W2128, W2233, W2236 and W2336 included in the quarterly monitoring program in March, May, August and October 2011. The water column in W2128 was frozen in March so no groundwater sample could be collected from this well during that event. These samples were analyzed for benzene, toluene, ethyl benzene and xylene, diesel range organics (DRO), and dioxins/furans in addition to PCP and PAH. The quarterly program was initiated in September 2006 at the request of EPA.

Water samples were also collected from the wells W2140, W2239, W2339. These samples were analyzed for benzene, toluene, ethyl benzene and xylene, diesel range organics (DRO), and dioxins/furans in addition to PCP and PAH.

The locations of the OU3 monitoring stations are shown on Figure 2.

2.4 Groundwater Treatment System

The extracted groundwater from the OU1 and OU3 extraction systems is treated prior to discharge to the Cass Lake/Pike Bay Channel to meet effluent limits specified in the NPDES and State Disposal System Permit No. MN0056537 and by EPA (August 15, 2005 letter). International Paper is authorized to discharge treated water to the channel connecting Cass Lake and Pike Bay at a monthly average rate of 0.200 million gallons per day (i.e., about 139 gpm).

The groundwater treatment system utilizes granular activated carbon and consists of three 20,000 lbs carbon units operated in series. The carbon units are designated Adsorber "A", "B", and "C".

2.4.1 Activities

In 2011, the carbon system was operated as indicated below:

Date	Primary	Secondary	Tertiary
Begin 2011	B	C	A
Change-out B on 1/27/2011	C	A	B
Change-out C on 9/08/2011	A	B	C
End 2011	A	B	C

During change out, the spent carbon is removed from the primary adsorber and replaced with fresh carbon. After change out, the primary vessel is switched to the tertiary position, the tertiary vessel is switched to the secondary position, and the secondary vessel becomes the primary. The spent carbon is dewatered on-site and was transported to Clean Harbors Environmental Services Inc., Kimball, Nebraska.

2.4.2 Water Quality

2.4.2.1 Effluent Monitoring

Influent and effluent samples from the treatment system were collected as required by the revised monitoring program (EPA August 15, 2005). The monitoring program is summarized on Table 3.

2.4.2.2 GAC Performance Monitoring

In addition, samples are collected monthly from the influent and the effluent from each adsorber and analyzed for PCP. This information is used to evaluate PCP breakthrough and plan for GAC change-out.

2.5 Fish Hatchery Wells

A groundwater sample was collected from the fish hatchery's south production well (Fish 4) on May 4, 2011. The sample was analyzed for PCP and the PAH compounds listed in Table 4. The locations of the fish hatchery wells are shown on Figure 2.

2.6 Product Monitoring and Collection Activities

Floating product monitoring and collection activities are described in the Free Product Recovery/Reuse Plan, April 1993. Monitoring and collection activities were conducted on May 11, 2011. Product level was measured with an interface probe and a disposable bailer was used to recover product from wells that contained recoverable product. The product recovery activities are summarized in Table 9. Although product would be recovered from any well, only W2105 and W2504 at the City Dump had recoverable product. Approximately 1.74 liters (0.46 gallons) were recovered from W2105 and 0.61 liters (0.16 gallons) were recovered from W2504. Recovered product was placed in the accumulation tank at the water treatment building located at OU1. A total of approximately 169.2 gallons of floating product have been collected over the roughly 17-year period since product recovery began.

Scavenger wells (identified as S2401, S2402 and S2403) were installed adjacent to the extraction wells at OU3. The scavenger wells would provide access to product that accumulates in the

drawdown cone of the nearby extraction well. Significant quantities of floating product have previously been recovered from S2401 and S2402, but product has not accumulated in S2403.

Special observation wells (identified as S401, S402, S403 and S405) were installed adjacent to the respective extraction wells at OU1. These wells were installed to observe whether floating product would accumulate in the drawdown cone created by the nearby extraction well. Repeated monitoring indicates that product has not accumulated in the drawdown cones of these wells.

3.0 Monitoring Results

3.1 Groundwater Elevations

Groundwater and surface water elevations measured at each operable unit are summarized in Table 10. Water elevations were obtained at all monitoring locations in 2011 and no water columns in the wells were frozen during the water level measurements. Groundwater elevations in the surficial and lower aquifers are consistent with those observed in the past with one exception.

The surface water elevation measured at the north staff gage in the channel during October 2011was declared anomalous, as it was uncharacteristically higher (i.e., 0.9 feet) than the surface water elevations at the other staff gages. The pool elevation for Cass Lake is controlled by Knutson Dam, and the pool elevation was decreasing since August and reached its lowest elevation (i.e., about 1300 ft MSL) at the end of October. Therefore, it is highly unlikely that the surface water elevation at the north staff gage would be about 1 foot higher than the water elevation at the railroad and south staff gages since Cass Lake was being drained and water from Pike Bay would be flowing to Cass Lake. The capture zone evaluation for the October data set did not use the anomalous elevation for the north staff gage.

The groundwater containment system capture zones for OU1 and OU3, as interpreted from the piezometric surface from the GW Contour software (Waterloo Hydrogeologic, 2005) using the 2011 groundwater elevation data and estimated control point elevations are described in the following sections. The details of the hydraulic capture zone delineation are provided in Appendix E.

3.1.1 OU1 Capture Zone Evaluation

Figures depicting the groundwater elevation contours and approximate extent of the hydraulic capture zones in the surficial aquifer are shown on Figures 3 through 10.

The primary contaminant source at OU1 is being captured as the extraction wells have created a capture zone that encompasses a large portion of the contaminant plume as depicted by the 100 µg/L pentachlorophenol contour line. This contour line includes PCP concentrations inferred from prior sampling events including the groundwater sample collected from the transmission line boring P-15B. Although contaminant concentrations at stations east of the extraction wells have decreased over time due to the groundwater extraction system, concentrations above drinking water criteria and/or intervention limits remain in samples from monitoring wells W212, W213 and W220 and one location north of the depicted capture zone (i.e., 105R). Contaminant concentrations no longer

exceed drinking water criteria and/or intervention limits in samples from W215, which is located near the Cass Lake/Pike Bay channel.

The capture zones depicted on Figures 3 (May 2011) and 7 (October 2011) show a smaller capture zone than depicted in 2009 and 2010. Figure 3 shows a smaller northern bulge in the capture zone than depicted in the 2010 and 2009 capture zones. The bulge is more pronounced on Figure 7. However, the bulge is significant and overestimates the northern boundary of the capture zone. The bulge may be caused by the lack of other known groundwater elevations north of the W401/W118 locations. A monitoring well will be installed in this general area during 2012.

The southern limit of the capture zone is also further north than previously depicted, since W406 and W407 provide measured groundwater elevations rather than estimated elevations. The capture zone depicted on Figure 7 shows the extent of the capture zone to be further west than Figure 3. This difference may be caused by the control point at W114 that attempts to estimate the groundwater elevation at the bottom of the surficial aquifer.

The inferred lower sand particle traces shown in Figures 6 and 10 indicate that there is no hydraulic capture zone in the lower sand. The groundwater elevation in the lower aquifer at the line of extraction wells (i.e., W306) compared to the groundwater elevation at W509, which is located nearby and screened in the upper aquifer, demonstrate there is a consistent upward gradient from the lower to the upper aquifer. The difference in elevation is 0.24 feet in May and 0.46 feet in October.

A groundwater flow model is needed to further evaluate the capture zones of the extraction system and to evaluate extraction rate and configuration modifications. The Quality Assurance Project Plan for the Groundwater Flow Model was approved by EPA in a September 6, 2011 email, and the groundwater flow model will be developed in 2012. Any modification to the extraction system would need to be verified with water level measurements.

3.1.2 OU3 Capture Zone Evaluation

The capture zones delineated by water elevations at wells screened at the top of the surficial aquifer at OU3 (Figures 4 and 8) are highly dependent on the groundwater elevation assigned to the Fox Creek control point which is located upgradient of the dump area and east of county road 147. The groundwater elevation is assigned based on the elevation at W2236 relative to the elevation at W2236 in 2006.

The OU3 capture zones delineated by the groundwater elevations at wells screened at the top of the surficial aquifer indicate that W2128 and W2140 are at or beyond the limit of the capture zone. The current method may over estimate the extent of the capture zone. However, PCP and naphthalene concentrations in the sample from W2140 are substantially lower than previous samples from W2140. This indicates that the increased extraction rates at W2402 and W2403 has had a positive impact on the ground water quality to the east. In addition, PCP and naphthalene concentrations in samples from W2128 are substantially lower than pre-remedy concentrations and are not increasing.

The capture zone delineated by wells screened at the base on the surficial aquifer shows a slightly larger capture zone. The two additional wells screened at the base of the surficial aquifer (W2239 and W2237R) provide additional real data for the capture zone evaluation. This evaluation is a mix of groundwater elevations for wells screened at the top and bottom of the surficial aquifer. Based on the capture zone depicted on Figures 5 and 9, the capture zone includes areas further south of W2105 (i.e., W2237R). Wells W2228 and W2140 are still located on the fringe or beyond the hydraulic capture zone. The current prediction method may overestimate the extent of the capture zones. In an effort to expand the capture zone further east, the extraction rate at W2402 was increased to 19 gpm in December 2011 and the extraction rate at W2403 was increased to 21 gpm in December 2011. These increased extraction rates have had a positive impact on groundwater quality to the east, as PCP and naphthalene concentrations have decreased in the samples from W2140.

The inferred lower sand particle traces shown in Figures 6 and 10 indicate that there is no hydraulic capture zone in the lower sand. The groundwater elevations in the lower aquifer compared to the groundwater elevations in the surficial aquifer demonstrates there is an upward gradient from the lower to the upper aquifer. The elevation differences range from 0.14 feet to 0.34 feet in May and 0.14 feet to 0.48 feet in October.

A groundwater flow model is needed to further evaluate the capture zones of the extraction system and to evaluate extraction rate and configuration modifications. The Quality Assurance Project Plan for the Groundwater Flow Model was approved by EPA in a September 6, 2011, and the groundwater flow model will be developed in 2012. Any modification to the extraction system would need to be verified with water level measurements.

3.2 Water Quality Monitoring Results

Samples were collected from monitoring wells and surface water stations at the Site and analyzed according to procedures specified in the QAPP, Revision 2. The quality control data are discussed in

Appendix A, and laboratory analytical reports are in Appendix B. Analytical data tables provided in this report summarize the parameters and verified concentrations at each location. Parameters listed with the value followed by "U" or "<" symbol were not detected in the sample at the value shown in the table. For 2011 data, the value shown is the method detection limit. Tables 15, 19, 23, 25 and 31 summarize data over time and the reporting requirements have changed. As such, the value on these tables may be the method detection limit or the method reporting limit. Estimated values are denoted by the "J" qualifier in the data summary tables. These values are between the method reporting limit and the method detection limit. Data qualifiers are defined in footnotes to the respective table.

In addition to the laboratory results, the tables show the following calculated results: BaP Equiv (ND = ½ DL) and BaP Equiv (ND = 0). These benzo(a)pyrene equivalency concentrations were calculated by using ½ of the method detection limit or zero, respectively, for compounds that were not detected in the sample.

Where appropriate, the groundwater quality data was compared to the intervention limits from the August 15, 2005 letter. The intervention limits for the benzo(a)pyrene and PCDD/PCDF are orders of magnitude below analytical detection limits.

Water quality results and concentration contours for wells screened in the surficial aquifer are plotted on Figure 11 for PCP and Figure 12 for naphthalene. Water quality results for wells screened in the lower aquifer are plotted on Figure 13 for PCP and 14 for naphthalene.

Sampling procedures require that a blind field ID be assigned to each sample. Appendix F provides a summary of the field ID and the associated SampleID and StationID for each sample.

The following sections summarize the analytical results of samples collected at the Site during 2011.

3.2.1 OU1 - Treating Facility Operable Unit

The results from the analysis of samples collected from monitoring wells screened at the top of the surficial aquifer at OU1 are summarized in Table 11. PAH concentrations in the samples from wells W105R, W114 and W115 are below the drinking water criteria (i.e., maximum contaminant level (MCL) or Minnesota Health Risk Level (MN HRL)) and PCP concentration in samples from wells W114 and W115 are below the drinking water criterion. A sample from well W105R collected in May showed PCP concentrations above the drinking water criterion. Due to an oversight, the planned fall sample was not collected from W105R. The elevated PCP concentration in samples

from W105R indicates that the extraction rate at the north end of the extraction system may need to be increased.

The results from the analysis of samples collected from monitoring wells screened at the base of the surficial aquifer are summarized in Table 12. PAH concentrations are less than the drinking water criteria for all samples from the monitoring wells screened at the base of the surficial aquifer. The PCP concentration is above the drinking water criterion in the samples from W212, and W220. The elevated PCP concentrations in samples from W212 and W220 may indicate that W408 should be reactivated to capture contaminated groundwater east of the main line of extraction wells. However, W408 may act to pull contaminated groundwater past the line of extraction wells as discussed during the March meeting with EPA and agency partners. The results of the upcoming OU1 vertical aquifer sampling scheduled for July 2012 will also provide information as to whether W408 needs to be brought back on line or possibly moved to a more optimal location.

Table 13 summarizes the results from the analysis of the sample collected from the lower aquifer monitoring wells at OU1. PCP and naphthalene were detected at concentrations slightly above the method detection limit but below the method reporting limit in the sample from W306. The detected concentrations are below the respective drinking water criteria. Naphthalene was the only PAH compound detected in the sample. Additional monitoring is needed to evaluate any PCP concentration in samples from W306.

The results from the PCP analysis of surface water samples from the north and south ends of the channel connecting Cass Lake and Pike Bay on May 3, 2011 are summarized in Table 14. PCP was not detected in either surface water sample. The optimal locations for these surface water samples will be reevaluated once the results of the OU1 Vertical Aquifer Sampling Work Plan are available. The field work is planned for July 2012.

Table 15 summarizes the BaP Equivalency (ND = ½ DL), Naphthalene and PCP concentrations at each monitoring station over time. The data typically represent the water quality during the second quarter of each year. The May 2011 data are consistent with the trend (or lack thereof) in previous results, as shown on the plots of PCP and naphthalene concentration versus time in Appendix D. The graphs in Appendix D use open markers labeled 'Not Detected' if the parameter was not detected (or quantified in some cases) at or above the specified concentration.

PCP and naphthalene concentrations at W212 have been steady for the last five years, but the current concentrations are about three orders of magnitude lower than before the remedial system was

operational. Groundwater flow may be stagnated in this area due to the groundwater extraction system. Low concentrations of PCP and naphthalene could also be present due to a slow release from the aquifer soil matrix, or the extraction system may be allowing some small degree of mass flux from the source area to travel past the line of extraction wells.

PCP is not detected in samples from W213 and the naphthalene concentration is variable but lower than previous data. PCP concentrations in samples from W220 have been variable since 2006 and remain above the PCP intervention limit. Naphthalene concentrations are also variable, but the concentrations are orders of magnitude below drinking water criteria.

EPA specified additional monitoring parameters and intervention limits for certain monitoring wells in the August 15, 2005 letter. The analytical results for the monitoring parameters with intervention limits are summarized in Table 16. Most monitoring parameters are either not detected or below the respective intervention limit. Extended list PAH compounds were not detected in the groundwater samples from W215 and W220. Samples from the following monitoring wells have concentrations above the identified intervention limit:

Monitoring Well	Parameter above Intervention Limit	Frequency
W212	PCP	3 of 3
	1,2,3,6,7,8-HxCDF	1 of 3
	1,2,3,4,7,8,9-HpCDF	1 of 3
W213	Anthracene	4 of 4
	1,2,3,6,7,8-HxCDD	1 of 4
	1,2,3,4,6,7,8-HpCDD	1 of 4
W220	PCP	4 of 4
	Anthracene	4 of 4

Operation and monitoring of the groundwater extraction system will continue since parameter concentrations continue to exceed the respective remedial action criteria. The water quality data suggests that the extraction rates at the north end (i.e., W403) should be increased to attempt to capture or cut-off PCP contaminated groundwater at W105R. The results of the upcoming OU1 vertical aquifer sampling scheduled for July 2012 will also provide information as to whether W408 needs to be brought back on line or possibly moved to a more optimal location.

3.2.2 OU2 - Containment Vault Operable Unit

The results from the analysis of samples collected from the containment vault monitoring wells are summarized in Tables 17 and 18. PCP and PAH concentrations are below the respective drinking water criterion. PCP was not detected in the groundwater samples. Trace concentrations of 2-methylnaphthalene, anthracene and naphthalene (non-carcinogenic PAH compounds) were detected in some samples (including samples from upgradient wells), but the detected concentrations are orders-of-magnitude below drinking water criteria.

Trace concentrations of 2-methylnaphthalene and naphthalene were detected in samples from the lower aquifer (including a sample from the upgradient well), but the concentrations are at least an order-of-magnitude below drinking water criteria. PCP was not detected in samples from the lower aquifer wells.

The BaP Equivalency (ND = ½ DL), naphthalene, and PCP concentrations in each well over time are shown in Table 19. Typical results are at or below the detection limits, and there is no indication of a trend of increasing concentrations in the samples from any of the wells.

3.2.3 OU3 - City Dump Pit Operable Unit

The results from the analysis of samples collected in 2011 from the monitoring wells screened in the surficial aquifer at OU3 are summarized in Table 20. PAH concentrations in samples collected from these monitoring wells are below the respective drinking water criteria. PCP concentrations in samples collected from these monitoring wells are below the respective drinking water criterion except at wells W2106, W2128, and W2140. Well 2106 is located in the center of the 3 extraction wells. PCP concentrations in samples from W2128 are below the intervention limit, but above the drinking water criterion. PCP concentration in the sample from W2140 is lower than previous samples from this well. The PCP concentration was 3,000 µg/L in 2010 and 910 µg/L in 2011. The naphthalene concentration was also reduced from 41 µg/L in 2010 to 5.6 µg/L in 2011. The increased extraction rate at W2402 has likely extended the capture zone in an easterly direction toward W2140.

Additional groundwater investigation to the east of W2140 is planned for winter 2013 to further delineate the extent of PCP contaminant plume. A work plan describing this additional investigation was submitted to US EPA and support agency partners, and EPA provided comments on the work plan in a May 9, 2012 email. International Paper is evaluating the comments and a revised OU3 work plan will be submitted to EPA. The work is tentatively scheduled for winter 2013 to take

advantage of the frozen ground, which will make the area more accessible for the mechanical equipment.

Six dioxin/furan congeners were detected in the sample from W2106 (Table 20). W2106 was in the product recovery program and was added as a groundwater quality monitoring well in 2006 at the request of EPA. This well is expected to define the upper limit of dissolved concentrations at OU3. 2,3,7,8-TCDD was not detected in this sample, and the toxicity equivalency quotient for the sample is below the drinking water criterion.

It is assumed that PCP and PAH concentrations in samples from W2102, W2103, W2104 and W2105 would also exceed their respective drinking water criteria. These wells are located within the capture zone of the OU3 extraction system.

Results from the analysis of samples collected from wells screened at the base of the surficial aquifer at OU3 are summarized in Table 21. PCP and PAH concentrations are below the drinking water criteria in samples from these wells with the exception of well W2238 where PCP was detected above the drinking water criterion. W2238 has a 1-foot screen that is located about 1-foot above the DNAPL impacted area and is located within the hydraulic capture zone of the extraction system.

PCP was not detected (DL = 0.07 µg/L) in any of the samples collected from W2233 in 2011 indicating that the September 27, 2010 detection at 6.5 µg/L is not representative of overall water quality in samples from W2233 (i.e., anomalous).

Table 22 summarizes the results from the analysis of samples collected from wells screened in the lower aquifer at OU3. PCP and PAH concentrations are below the drinking water criteria.

Table 23 summarizes the BaP Equivalency (ND = ½ DL), naphthalene and PCP concentrations in each of the OU3 wells over time. The results from 2011 are generally consistent with historical results, as shown on the plots of concentration versus time in Appendix D.

EPA specified additional monitoring parameters and intervention limits for certain monitoring wells in the August 15, 2005 letter. The analytical results for the monitoring parameters with intervention limits are summarized in Table 24. Most monitoring parameters are either not detected or below the respective intervention limit. Extended list PAHs were not detected in the sample from W2128. Samples from the following monitoring wells have concentrations above the intervention limit:

Monitoring Well	Parameter above Intervention Limit	Frequency

Monitoring Well	Parameter above Intervention Limit	Frequency
W2238	DRO	1 of 1
	PCP	1 of 1
	Anthracene	1 of 1
W2239	1,2,3,4,7,8-HxCDF	1 of 1

These wells are located within the capture zone of the OU3 extraction system. Operation and monitoring of the groundwater extraction system will continue since parameter concentrations continue to exceed the remedial action criteria.

3.2.4 OU1 and OU3 Extraction Wells

W408 was the only extraction included in the 2011 sampling plan, but was not operational during sample event. The well was not sampled in 2011. All extraction wells will be sampled in 2012 whether they are operational at the time or not. This water quality data will be used in part to decide whether to repair, rebuild or permanently seal the respective well(s). The results of the OU1 and OU3 vertical aquifer sampling (to be conducted in summer 2012 and winter 2013, respectively) will also factor into these decisions. Table 25 provides a summary of the water quality data for the extraction wells over time.

3.2.5 Groundwater Treatment System

The results from analysis of samples collected monthly at the groundwater treatment system are summarized in Tables 26 and 27. Influent PCP concentrations ranged from 1,400 to 1,900 µg/L with an average concentration of approximately 1,600 µg/L. The GAC performance monitoring data (PCP concentration) is summarized in Table 26.

Monitoring of the effluent indicates that most parameters are below the respective effluent limitations specified for the treatment system (see Table 27). Metals (arsenic, chromium and copper), BETX, PCP, and PAH compounds with the exception of benzo(a)pyrene are well below the effluent limitations. Benzo(a)pyrene was detected at trace levels in six of twelve effluent samples. The effluent limitation is more than an order of magnitude below the analytical detection limit. 1,2,3,4,6,7,8-HpCDD was reported above the effluent limitation in two of four effluent samples.

Granular activated carbon (GAC) is the best available technology for removing dissolved organics (e.g. PCP, PAHs, and dioxin) from water. The system is operated with three vessels in series. Spent GAC is removed from the lead vessel when the water quality data indicate the PCP is nearing breakthrough of the final vessel. The vessel is rinsed and new carbon is placed in the empty vessel

and this vessel with the newest carbon becomes the final vessel in series. The trace levels of benzo(a)pyrene and 1,2,3,4,6,7,8-HpCDD detected in the some of the effluent samples could indicate that some spent GAC was not removed from the vessel during the change-out. Each vessel will be inspected to verify whether all spent GAC has been removed from the vessel before new carbon is placed in the vessel and returned to service.

Flow rates and effluent pH were measured continuously at the treatment system effluent throughout the year. The monthly effluent pH and volume data are presented in Tables 28 and 29, respectively.

The flow rate and concentration data were used to estimate the mass of PCP and PAHs removed by the treatment system. In 2011, approximately 56.8 million gallons of groundwater was treated and 351 kg of PCP and 516 kg of PAHs were removed. The total mass removed since 1987 is estimated at 13,417 kg of PCP and 7,118 kg of PAHs. The mass of PAHs removed was calculated using the 2010 PAH concentration data (PAH data was not required in 2011).

3.2.6 Fish Hatchery Wells

The results from the analysis of the sample collected from the Fish Hatchery's south production well (aka Fish 4) are summarized in Table 30. Pentachlorophenol was not detected (DL = 0.07 µg/L) and naphthalene was reported at a trace concentration. These analytical results are consistent with previous data (Table 31) and are orders of magnitude below drinking water criteria.

3.3 Vault Inspection

The containment vault was inspected on May 3 and October 12, 2011. Copies of the completed vault inspection forms are in Appendix C. The inspections did not identify any deficiencies.

3.3.1 Run-On and Runoff Control Systems

The run-on and runoff control systems were clear of debris during inspections. The systems contained adequate vegetation and no standing water or erosion was present. No deficiencies of the systems were noted.

3.3.2 Leachate Collection and Leak Detection Systems

Leachate was present in the leachate collection manhole (LCM) and leak detection manhole (LDM) in both May and November. The leachate elevations were recorded during the vault inspections and are summarized in Table 32. The LCM and LDM are covered and no damage to either manhole was noted.

Groundwater monitoring is conducted to evaluate whether there has been a release from the vault. As noted in Section 3.2.2, there is no indication of a trend of increasing concentrations in the samples from any of the vault monitoring wells. The vault dewatering program has minimized the driving force for potential release of leachate through the underlying synthetic and clay liners. Dewatering efforts will continue to reduce the driving force.

3.3.3 Benchmarks and Wells

The monitoring wells, benchmarks and protective posts were not damaged and did not show signs of deterioration. Benchmarks were surveyed on May 11, 2011. The elevations are listed in Table 33 and are consistent with previous measurements. No settling of the vault contents is indicated by the elevation data.

The monitoring wells and protective posts were not damaged. The metal caps are in place and locked. No deficiencies were identified.

3.3.4 Security System

The chain link fence and vehicle gate were not damaged, and no deficiencies in the security system were identified. The gate is locked when the vault is unattended.

3.3.5 Corrective Actions

The inspections did not identify any deficiencies. No corrective actions were necessary in this time period.

3.4 Vault Dewatering Activities

After vault closure in 1987, water levels indicated that the lower 14 feet of soil in the vault was water-saturated. This soil is continuing to release pore water and this water continues to accumulate at a slow rate in the collection system. Leachate elevations recorded over time are plotted on Figure 15.

Leachate was removed from the vault during 2011. A filter was installed ahead of the flow meter to remove solids/sediments that impaired the flow meter during previous leachate removal operations. The filter required frequent monitoring and cleaning to keep the water flowing through the filter. Approximately 10,100 gallons of water were removed from the vault in accordance with the approved leachate disposal plan. The water was pumped to the groundwater treatment system. Approximately, 1,622,000 gallons of leachate have been removed from the vault since its closure in 1987.

Leachate levels should continue to be monitored and leachate should continue to be removed from the vault.

4.0 Summary

Monitoring at the Site in 2011 was completed in accordance with the requirements of the Orders and monitoring plans listed in Section 2.0. Any exceptions are described in this report. The monitoring results are summarized as follows:

- PCP and PAHs are the indicator chemicals from former operations at the Site.
- PCP and PAH concentrations in samples collected from wells screened in the upper aquifer at OU1 and located near the channel (i.e., W212, W215, and W220) continue to show significantly lower concentrations compared to pre-remedy conditions. PCP was not detected in samples collected from W213 and W215. PCP concentrations exceeded drinking water criterion in samples from W212 and W220. PAH and PCP concentrations within the mapped contaminant plume continue to show varying concentrations.
- Intervention limits established for benzene, toluene, ethyl benzene, xylene, and benzo(a)pyrene were not exceeded at any of the monitoring wells that were assigned intervention limits. The intervention limit for PCP was exceeded in samples from W212, and W220 at OU1. The intervention limit for anthracene was exceeded in samples from wells W213 and W220.
- Extended-list PAHs were not detected in samples from W215, W220 and W2128.
- PCP and PAH concentrations in all samples from the lower aquifer are below drinking water criteria. Trace concentrations of PCP and certain PAHs were detected in samples from some of the lower aquifer wells. There is no trend of increasing concentrations in samples from the lower aquifer over time.
- PCP was not detected in the surface water samples collected from the channel connecting Cass Lake and Pike Bay.
- PCP was not detected in samples from any vault monitoring well sample during 2011. Only trace concentrations of certain PAH compounds were detected in the samples from the vault monitoring wells. The concentrations are orders of magnitude below drinking water criteria, are consistent with upgradient water quality data, and do not show a trend of increasing concentration.
- No significant concentrations of PCP or PAH compounds were reported in the sample from the Fish Hatchery's south production well (Fish 4). Pentachlorophenol was not detected and naphthalene was the only PAH compound detected in the sample. The detected concentration is orders of magnitude below drinking water criteria.

- The groundwater treatment system effectively removed PCP and PAH compounds from the extracted groundwater at the Site. Effluent monitoring data demonstrate no exceedances of effluent limitation with the exception of benzo(a)pyrene and 1,2,3,4,6,7,8-HpCDD. Benzo(a)pyrene was detected at trace levels in six of twelve effluent samples and the effluent limitation is below the method detection limit. 1,2,3,4,6,7,8-HpCDD was reported above the effluent limitation in two of four effluent samples. Arsenic, copper and chromium concentrations were detected at concentrations typical of shallow groundwater. Benzene, ethyl benzene, and toluene and xylene were not detected in the effluent samples. DRO was detected in one of twelve samples at a concentration very near the method detection limit and well below the effluent limit.
- The carbon treatment system has removed approximately 13,417 kg of PCP and 7,118 kg of PAH compounds from approximately 1.33 billion gallons of water over its operational lifetime.
- A total of approximately 169.2 gallons of product have been recovered over a 17-year period, including 0.6 gallons in 2011.
- Concentrations of PCP exceeded intervention limits for two of the down-gradient compliance wells for OU1 as defined by the US EPA in 2005 (W212 & W220). The extraction wells continue to remove water with relatively high concentrations of PCP and PAH compounds. Concentrations initially dropped off after the first several years of system operation (circa. 1987-1990) for the OU1 and OU3 extraction systems; however, since then, the concentrations have remained stable at around 1,000 to 9,000 µg/L for many of the extraction wells, indicating that a significant amount of contaminant source material remains. Since the extraction system began operating, the PCP concentrations in down-gradient monitoring wells (i.e., W212, W213, W215 and W220) have decreased by about three orders of magnitude. PCP has not been detected in samples from well W215 since 2007. The PCP concentration in samples from wells W212 and W220 have been variable (i.e., small increases and decreases) over the last few years indicating that these wells may be in an area of stagnated groundwater flow. Low concentrations of PCP and naphthalene could also be present due to a slow release from the aquifer soil matrix, or the extraction system may be allowing some small degree of mass flux from the source area to travel past the line of extraction wells. A groundwater flow model is needed to provide a more thorough evaluation of the hydraulic capture zones at OU1 and OU3.
- PCP and PAH Compound concentrations exceed drinking water criteria in samples from W2140, but the concentrations are lower for the 2011 samples. Additional groundwater

investigation to the east will be conducted in winter 2013. A work plan describing this additional investigation was submitted to US EPA and support agency partners, and EPA provided comments on the work plan in a May 8, 2012 email. International Paper is evaluating the comments and a revised OU3 work plan will be submitted to EPA.

5.0 Recommendations

Continue operating the groundwater extraction systems and groundwater treatment system in accordance with the Order, the MDNR water appropriation permit, the revised effluent monitoring plan, and the recommended 2012 monitoring plan (Section 6).

- Continue monitoring water levels and water quality in accordance with the recommended monitoring plan (Section 6). The monitoring program should be revised to provide for data collection in April-May, July-August and September-October to avoid winter conditions that prevent collection of data due to frozen water in certain wells.
- Maintain the extraction and groundwater treatment system components (i.e., pumps, valves, piping, flow meters) as necessary according to the Operation and Maintenance Plan, St. Regis Paper Company Site, Cass Lake, Minnesota, dated March, 1995, or the updated plan currently under development, which will be submitted to EPA on or before August 6, 2012.
- Continue monitoring and recovering product as described in the Free Product Recovery/Reuse Plan, April 1993.
- Continue pumping water from the vault during 2012. Record water levels during each vault inspection.
- A revised groundwater flow model should continue to be developed for the site to aid in the delineation of the capture zone and evaluate modifications to the extraction system. The current capture zone delineation method requires multiple control points to attempt to incorporate site specific information. A groundwater flow model would incorporate site specific information to better delineate the capture zones at OU1 and OU3. EPA approved the QAPP for the groundwater flow model, and the model will be developed as detailed in the QAPP.
- The OU1 Vertical Aquifer Sampling Work Plan was recently approved by US EPA and is planned to be implemented in July 2012. The data generated by this field sampling event will help delineate the vertical and horizontal extent of PCP in the surficial aquifer at OU1. This information will also be used to evaluate whether to reactivate extraction well W408.
- Additional surficial and lower aquifer monitoring wells will be installed at OU1 after completion of the OU1 vertical aquifer sampling. The work plan for monitoring well installation has been approved by EPA.
- Additional groundwater investigation to the east of W2140 is planned for winter 2013 to further delineate the extent of PCP contaminant plume. A work plan describing this

additional investigation was submitted to US EPA and support agency partners, and EPA provided comments on the work plan in a May 8, 2012 email. International Paper is evaluating the comments and a revised OU3 work plan will be submitted to EPA on or before September 10, 2012. The work is tentatively scheduled for winter 2013 to take advantage of the frozen ground, which will make the area more accessible for the mechanical equipment.

6.0 Monitoring Plan for 2012

This section presents the monitoring plan for monitoring activities at the St. Regis Paper Company Site. The monitoring plan will be reviewed and may be modified, as appropriate, in future annual reports.

6.1 Monitoring Activities

6.1.1 Capture Zone Confirmation

The OU1 and OU3 groundwater extraction systems will continue to be operated as in previous years. The extraction system maintenance program, monitoring of extraction well performance and confirmation of the capture zone will be continued as detailed in the October 28, 2005 letter to EPA (summarized below).

6.1.1.1 Extraction System Maintenance Plan

International Paper will update the maintenance plan from the March 1995, Operating and Maintenance Plan to identify procedures to maintain the effectiveness of the extraction systems including well screen maintenance, pump maintenance or replacement, and pipe cleaning. The updated extraction system maintenance plan will be submitted to EPA on or before August 3, 2012. The updated extraction system maintenance plan will identify an extraction rate for each extraction well or group of wells and allowable deviations from the optimal extraction rates (See letter to EPA date October 28, 2005).

Extraction well performance will be evaluated in the quarterly progress reports. This will include maintenance activities conducted during the quarter; monthly average extraction rates, water levels, and pressure gage readings for the appropriate monitoring points; and maintenance activities anticipated for the next quarter. Overall extraction well performance will continue to be summarized in each annual report.

EPA also requested that monthly rainfall data be reported. Rainfall data will be downloaded from http://climate.umn.edu/HIDradius/radius.asp; Station: 211374 Cass Lake and included in the appropriate quarterly reports and in the annual report.

6.1.1.2 Hydraulic Capture Zone Monitoring

Water levels will be measured in the Site-wide network of piezometers and monitoring wells in the April-May and September-October to avoid winter conditions. This information will be summarized

in the annual report. Groundwater elevation data at the monitoring points will be reviewed based on plots of previous trends and comparisons to nearby data points. Anomalous data will not be used in the capture zone analysis and the rationale for any exclusions will be provided on the data summary table in the annual report. Water levels will be used to develop maps of piezometric surface contours and estimated hydraulic capture zones, which along with the MODFLOW model (page 11); will be the basis for maps of piezometric surface contours and hydraulic capture zones included in the annual report.

The GW Contour software package (Waterloo Hydrogeologic, 2005) will be used to generate groundwater elevation contour maps for the surficial aquifer and lower aquifer using data from each set of water level measurements. GW Contour is a data interpolation and visualization tool that is used to create two-dimensional groundwater data models. A variety of interpolation schemes is available in GW Contour. The contour maps will be created using a natural neighbor algorithm. GW Contour will also be used to generate flow lines based on contoured head data.

The data input set for the GW Contour software package will be based on the 2012 water level measurements and on information from USGS topographic maps. The Site is part of a large sand plain with numerous lakes and wetlands in close contact with the surficial aquifer. Several of the lakes, including Cass Lake and Wolf Lake to the northwest of the Site, are connected to the Mississippi River, which drains the region. Some of the lakes and wetlands to the west are at elevations above the Mississippi River and connected lakes, and these higher water bodies provide some upgradient control on groundwater flow in the vicinity of the Site. Additional upgradient control on groundwater flow is provided by the recharge area northwest of the City of Cass Lake. Control points used in the GW Contour input files will be based on the regional groundwater flow model and gradients calculated between wells and between wells and lake elevations.

The measured water levels in the extraction wells are not considered to be valid with respect to the contouring of groundwater levels. However, it would also be inappropriate to simply ignore these wells. An algorithm was developed similar to the one described by Subterranean Research (July 2005) in their work on the Site for EPA (see Appendix E, Hydraulic Capture Zone Report, St. Regis Paper Company Site, Revised March 2008). This algorithm, or amendments to the algorithm, will be used to estimate the water elevation at the screen of each extraction well.

Hydraulic capture zones for both the OU1 and OU3 extraction systems will be delineated by starting stream traces nearby and downstream of the extraction wells and using the backward particle tracking

feature in GW Contour to define the traveled path. Flow lines located outside the hydraulic capture zones will be generated using a combination of forward and backward particle tracking.

6.1.2 Containment Vault Postclosure Inspection

The containment vault will be inspected during the second and third quarters of 2012 to evaluate the integrity of the vault components. Visual inspections will be documented on the observation reports. The benchmark elevations will be surveyed during the annual groundwater monitoring event. Leachate will be pumped from the vault to the groundwater treatment system, as needed.

6.1.3 Water Quality Monitoring Plan

Water quality monitoring stations at the Site include monitoring wells, extraction wells, surface water stations, and sample taps for the groundwater treatment system. Water quality sampling stations, with the exception of the sample taps, have been grouped into the following two categories: (1) performance-monitoring stations; and (2) indicator-monitoring stations. Performance-monitoring stations are sampled during even numbered years and the analytical data are used to verify long-term water quality trends and the performance of the remedial actions at the Site. Indicator-monitoring stations are sampled each year and the analytical data are used to evaluate potential changes in water quality trends. The stations and analytical parameters included in the monitoring plan are summarized in Tables 34 and 35, including quarterly sampling from selected monitoring wells. W118 was added to performance monitoring list and will be sampled if no free product is observed on the water column. Monitoring at W105R has been increased to semi-annual. Water quality monitoring will be conducted in April-May, July-August and September-October to avoid the winter conditions.

6.1.4 Effluent and GAC Performance Monitoring Plan

Groundwater from the OU1 and OU3 extraction systems is treated prior to discharge to the channel connecting Cass Lake and Pike Bay. Vault leachate from OU2 is also pumped to the treatment system. The treatment system consists of three 20,000 pound granular activated carbon adsorbers connected in series. Sample taps are installed on the influent and effluent of each adsorber. The stations and analytical parameters included in the 2012 effluent and GAC performance monitoring plan are summarized in Table 36.

6.1.5 Fish Tissue Samples

Decisions regarding continued fish tissue monitoring will be based on the conclusions of the Human Health and Ecological Risk Assessment. Should EPA require a fish tissue monitoring program after

approval of the Human Health and Ecological Risk Assessment, either this monitoring plan will be supplemented to include the fish tissue monitoring program, or the required fish tissue monitoring will be conducted under another approved program.

6.2 Product Monitoring and Collection

The stations and frequencies for product monitoring are summarized in Table 34. Accumulated product will be recovered after the annual groundwater quality monitoring event.

6.3 Reporting

6.3.1 Quarterly Progress Report

International Paper Company will submit quarterly progress reports to the EPA that summarize the previous quarter's activities and activities anticipated for the following quarter.

Extraction well performance will continue to be evaluated in the quarterly progress reports including maintenance activities conducted during the quarter; monthly average extraction rates, and water levels collected during the quarter, monthly rainfall data; and will describe maintenance activities anticipated for the next quarter.

EPA also requested that monthly rainfall data be reported. Rainfall data will be downloaded from http://climate.umn.edu/HIDradius/radius.asp; Station: 211370 Cass Lake and included in the appropriate quarterly reports and in the annual report.

6.3.2 Annual Report

International Paper Company will submit the 2012 Annual Report to the EPA on or before April 1, 2013 or as otherwise agreed with the EPA. The annual report will summarize the remedial action operations and the monitoring activities conducted at the Site for, and make recommendations for the 2013 monitoring plan. The data summary tables will include the intervention limits and effluent limitations specified in the August 15, 2005 EPA letter.

Water levels from the network of piezometers and monitoring wells will be used to develop maps of piezometric surfaces and hydraulic capture zones. The groundwater elevation at each well will be plotted on each map so the reviewer can compare the contour lines to the measured elevations.

Tables

Table 1
2011 Annual Monitoring Event Summary
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
OU1-	Top of Surficial	W104	P		--		--						2
Treating Facility		W105R	I		1		1						2
Area		W112	P		--		--						2
		W114	I		1		1						2
		W115	I		1		1						2
		W118 (3)	P	--		--							2
	Bottom of Surficial	W205	P		--		--						2
		W209	P		--		--						2
		W212 (2)	I										2
		W213 (2)	I										2
		W215	I		1		1	1					2
		W217	P		--		--						2
		W218	P		--		--						2
		W219	P		--		--						2
		W220 (2)	I					1					2
		W221	P		--		--						2
		W222											2
		W223											2
	Lower Aquifer	MW3	P		--		--						2
		W302	P		--		--						2
		W306	I		1		1						2
	Pump-out Wells	W401	P	--		--							2
		W402	P	--		--							2
		W403	P	--		--							2
		W404	P	--		--							2
		W405	P	--		--							2
		W406	P		--		--						2
		W407	P		--		--						2
		W408	I	0		0							2
		W409	P	--			--	--					2
		W410	P	--			--						2
		W411	P		--		--						2
	Observation Wells	W509											2
		W510											2
		W511											2
		W512											2
		W513											2
		W514											2
	Special Observation	SO401	PMC										2
	Wells	SO402											2
		SO403											2
		SO405											2
	Channel	CL-N	I		1								
		CL-S	I		1								
		North Staff											2
		RR Staff											2
		South Staff											2

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St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
OU2 - Containment Vault Area	Upper Aquifer	W124	I		1		1						2
		W125	I		1		1						2
		W126	I		1		1						2
		W127	I		1		1						2
		W128	I		1		1						2
		W129	I		1		1						2
		W130	I		1		1						2
	Bottom of Surficial	W231											1
	Lower Aquifer	W324	I		1		1						2
		W329	I		1		1						2
		W330	I		1		1						2
OU3 - City Dump Pit Area	Top of Surficial	W2102	PMC										2
		W2103	PMC										2
		W2104	PMC										2
		W2105	PMC										2
		W2106	I	1		1						1	2
		W2127	I		1		1						2
		W2128 (2)	I					1					2
		W2129	I		1		1						2
		W2134	P		--		--						2
		W2135	I		1		1						2
		W2140	I		1		1		1	1	1	1	2
	Bottom of Surficial	W2228	I		1		1		1	1	1	1	2
		W2233 (2)	I										2
		W2234	I		1		1						2
		W2236 (2)	I										2
		W2237R	I		1		1		1	1	1	1	2
		W2238	I		1		1		1	1	1	1	2
		W2239	I		1		1		1	1	1	1	2
	Lower Aquifer	W2301	P		-		--						2
		W2325	P		--		--						2
		W2326	P		--		--						2
		W2329	P		--		--						2
		W2333	P		--		--						2
		W2335	I		1		1						2
		W2336 (2)											2
		W2339	I		1		1		1	1	1	1	2
	Pump-out Wells	W2401	P	--		--							2
		W2402	P	--		--							2
		W2403	P	--		--							2
	Scavenger Wells	S2401	PMC										2
		S2402	PMC										2
		S2403	P										2
	Observation Wells	W2501											2
		W2502											2
		W2504											2
		W2505											2
	Fox Creek	@ W2127	I										2

Table 1
2011 Annual Monitoring Event Summary
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
Additional Wells	HatcheryWells	Fish 1	P		--		--						
		Fish 2	P		--		--						
		Fish 3	P		--		--						
		Fish 4	I		1		1						
Number of Samples				1	29	1	27	3	6	6		7	185
Number of QC Samples													
	Duplicates	5%		1	2	1	2	1	1	1		1	9
	Field Blanks	5%		1	2	1	2	1	1	1		1	--
	MS/MSD	5%		1	2	1	2	1	1	1		1	--
Total Number of Samples				4	35	4	33	6	9	9		10	194

Notes:

This table identifies the number of samples at each station over the year.

(1) Water levels will be measured in during the spring and fall sampling event.

(2) See Quarterly Sample Program (Table 36)

(3) Collect sample, if no product present in water column.

Category

I - Indicator Monitoring Station (Annual Sampling)

P - Performance Monitoring Station (Biennial Sampling)

PMC - Product Monitoring and Collection Station

Table 2
2011 Quarterly Monitoring Event Summary
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Dioxins	Water Level
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	8290	
OU1-	Bottom of Surficial	W212	I		3		3		3	3	3	3
Treating Facility		W213	I		4		4		4	4	4	4
Area		W220	I		4		4		4	4	4	4
OU3 -	Top of Surficial	W2128	I		3		3		3	3	3	3
City Dump Pit	Bottom of Surficial	W2233	I		4		4		4	4	4	4
Site		W2236	I		4		4		4	4	4	4
	Lower Aquifer	W2336	I		4		4		4	4	4	4
Number of Samples				0	26	0	26	0	26	26	26	26
Number of QC Samples [(1)]												
	Duplicates			0	2	0	2	0	3	3	3	2
	Field Blanks			0	2	0	2	0	3	3	3	--
	MS/MSD			0	2	0	2	0	3	3	3	--
Total Number of Samples				0	32	0	32	0	35	35	35	28

Notes:

This table identifies the number of samples at each station over the year.

[(1)] Number of QC samples as follows:

PCP - 5%
PAH - 5%
BETX - 10%
DRO - 10%
Dioxins - 10%

Category

I - Indicator Monitoring Station (Annual Sampling)

P - Performance Monitoring Station (Biennial Sampling)

PMC - Product Monitoring and Collection Station

Table 3
2011 Monthly Monitoring Event Summary
Effluent and GAC Performance Monitoring Program
St. Regis Paper Company and City Dump Pit Sites

		PCP				PAHs	Metals [A]	BETX	DRO	Dioxins/furans
		8151M				8270-SIM	6020; 7195/6010B	8620	8015B	8290
Month		Influent	Primary	Secondary	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent
January		1	1	1	1	1	1	1	1	
February		1	1	1	1	1	1	1	1	1
March		1	1	1	1	1	1	1	1	
April		1	1	1	1	1	1	1	1	
May		1	1	1	1	1	1	1	1	1
June		1	1	1	1	1	1	1	1	
July		1	1	1	1	1	1	1	1	
August		1	1	1	1	1	1	1	1	1
September		1	1	1	1	1	1	1	1	
October		1	1	1	1	1	1	1	1	
November		1	1	1	1	1	1	1	1	1
December		1	1	1	1	1	1	1	1	
Number of Samples		48				12	12	12	12	4
Number of QC Samples										
Duplicate	5%	3				1	1	1	1	1
Field Blank	5%	3				1	1	1	1	1
MS/MSD	5%	3				1	1	1	1	1
Trip Blank [B]	--	--				--	--	12	--	--
Total Number of Samples		57				15	15	27	15	7

Notes:

[A] Arsenic, Copper, & Chromium. If chromium exceeds 11 µg/L in any effluent sample, additional effluent samples will be collected and analyzed for hexavalent and trivalent chromium.

[B] One trip blank per event when BETX samples are collected.

Flow rate and pH are measured continuously.

Numbers indicate the number of samples during each event.

Table 4
Routine Parameter List and Method Reporting Limits
St. Regis Paper Company Site

Analyte	CAS Number	SW-846 Method 8270 [µg/L] Method Reporting Limit	SW-846 Method 8270 [µg/L] Method Detection Limit (1)	SW-846 Method 8270-SIM [µg/L] Method Reporting Limit	SW-846 Method 8270-SIM [µg/L] Method Detection Limit (1)
PAHs					
2-Methylnaphthalene	91-57-6	10	0.239	0.02	0.003
Acenaphthene	83-32-9	10	0.281	0.02	0.002
Acenaphthylene	208-96-8	10	0.236	0.02	0.002
Anthracene	120-12-7	10	0.612	0.02	0.002
Benz[a]anthracene	56-55-3	10	0.591	0.02	0.003
Benzo[a]pyrene	50-32-8	10	0.654	0.02	0.002
Benzo[b]fluoranthene	205-99-2	10	0.584	0.02	0.002
Benzo[ghi]perylene	191-24-2	10	0.812	0.02	0.004
Benzo[k]fluoranthene	207-08-9	10	0.827	0.02	0.002
Chrysene	218-01-9	10	0.787	0.02	0.002
Dibenz[a,h]anthracene	53-70-3	10	0.752	0.02	0.002
Fluoranthene	206-44-0	10	0.652	0.02	0.003
Fluorene	86-73-7	10	0.323	0.02	0.003
Indeno[1,2,3-cd]pyrene	193-39-5	10	0.684	0.02	0.003
Naphthalene	91-20-3	10	0.365	0.02	0.004
Phenanthrene	85-01-8	10	0.482	0.02	0.004
Pyrene	129-00-0	10	0.731	0.02	0.003
Pentachlorophenol	87-86-5	25	2.44	1	0.095
		SW-846 Method 8151 [µg/L]			
Pentachlorophenol	87-86-5	0.5	0.095		

Notes:

CAS - Chemical Abstracts Service

PCDD - polychlorinated dibenzo-*p*-dioxin

PCDF - polychlorinated dibenzofuran

NA - not applicable

(1) Method detection limits are subject to change based on the laboratory's MDL study schedule.

Table 5
Additional Parameter List and Method Reporting Limits
St. Regis Paper Company Site

Analyte	CAS Number	Method Reporting Limit	Method Detection Limit [1]
Extended-list PAHs		**SW-846 Method 8270-SIM [µg/L]**	
Benzo(j)fluoroanthene		0.02	0.0035
Dibenz(a,j)acridine		0.02	0.0029
Dibenz(a,h)acridine		0.02	0.0029
7H-Dibenzo(c,g)carbazole		0.02	0.0013
Dibenzo(a,e)pyrene		0.02	0.0019
Dibenzo(a,h)pyrene		0.02	0.0014
Dibenzo(a,i)pyrene		---	0.053
Dibenzo(a,l)pyrene		0.02	0.0015
7,12-Dimethylbenzanthracene		0.02	0.0015
1,6-Dinitropyrene		0.05	0.0076
1,8-Dinitropyrene		0.05	0.0032
3-Methylcholanthrene		0.02	0.0027
5-Methylchrysene		0.02	0.0014
5-Nitroacenaphthene		0.02	0.0021
1-Nitropyrene		0.03	0.0083
6-Nitrochrysene		0.02	0.0015
2-Nitrofluorene		0.02	0.0016
Dioxin/Furans [2]		**SW-846 Method 8290 [pg/L]**	
2378-TCDD	1746-01-6	10.0	3.1
12378-PeCDD	40321-76-4	50.0	9.3
123678-HxCDD	57653-85-7	50.0	6.0
123478-HxCDD	39227-28-6	50.0	10.6
123789-HxCDD	19408-74-3	50.0	18.7
1234678-HpCDD	35822-46-9	50.0	8.1
OCDD	3268-87-9	100.0	38.0
2378-TCDF	51207-31-9	10.0	2.5
12378-PeCDF	57117-41-6	50.0	9.4
23478-PeCDF	57117-31-4	50.0	9.4
123678-HxCDF	57117-44-9	50.0	4.6
123789-HxCDF	72918-21-9	50.0	9.7
123478-HxCDF	70648-26-9	50.0	8.6
234678-HxCDF	60851-34-5	50.0	6.1
1234678-HpCDF	67562-39-4	50.0	4.3
1234789-HpCDF	55673-89-7	50.0	7.7
OCDF	39001-02-0	100.0	46.0
Total tetrachlorinated dioxins	41903-57-5	NA	NA
Total pentachlorinated dioxins	36088-22-9	NA	NA
Total hexachlorinated dioxins	34465-46-8	NA	NA
Total heptachlorinated dioxins	37871-00-4	NA	NA
Total tetrachlorinated furans	30402-14-3	NA	NA
Total pentachlorinated furans	30402-15-4	NA	NA
Total hexachlorinated furans	55684-94-1	NA	NA
Total heptachlorinated furans	38998-75-3	NA	NA
BTEX		**SW-846 Method 8260 [µg/L]**	
Benzene	71-43-2	0.5	0.105
Ethylbenzene	100-41-4	0.5	0.13
Toluene	108-88-3	0.5	0.0975
Xylenes (Total)	1330-20-7	1.0	0.219
DRO		**SW-846 Method 8015M [µg/L]**	
Diesel-Range Organics w/Silica gel		50	19

Table 5
Additional Parameter List and Method Reporting Limits
St. Regis Paper Company Site

Analyte	CAS Number	Method Reporting Limit	Method Detection Limit [1]
Metals		**SW-846 Method 7195/6010B [µg/L]**	
Arsenic	7440-38-2	0.5	0.1
Chromium, Total	7440-47-3	0.2	0.06
Copper	7440-50-8	0.2	0.2
Hexavalent Chromium (Cr VI)		10	4
Trivalent Chromium (Cr III) (by calc)		n/a	n/a

Notes:

CAS - Chemical Abstracts Service

PCDD - polychlorinated dibenzo-*p*-dioxin

PCDF - polychlorinated dibenzofuran

NA - not applicable

[1] Method detection limits are subject to change based on the laboratory's MDL study schedule.

[2] Method detection limits for dioxin analysis are acutally EDLs per Method 8290. The EDLs are sample specific, therefore, the values shown represent the typical level of sensitivty of the method and are not intended to be absolute.

Table 6
OU1 Groundwater Annual Average Extraction Rates
St. Regis Paper Company Site

Total	Maximum Design Capacity[1] [gpm]	Initial Pumping Rate (@ Start-up) [gpm]	Pumping Rate 1996 GW Flow Model [gpm]	Pumping 2005 GW Flow Model [gpm]	2009 Pumping Rate [gpm]	2010 Pumping Rate [gpm]	2011 Pumping Rate [gpm]
W401	15	5	5	5	5.4	5.5	5.4
W402	15	5	5	6	5.1	5.1	4.5
W403	25	10	15	4	5.8	9.2	11.3
W404	25	10	0	0	14	11	11.8
W405	25	9	20	19	20	17	11.4
W406	25	9	5	4	8.5	1.5	0.0
W407	25	9	8	8	10.2	4.9	0.0
W408	15	5	20	7	0.6	0	0.0
W409	25	10	15	14	17.8	16	21.2
W410	25	10	5	5	4.8	5.8	4.3
Total	**220**	**82**	**98**	**72**	**81.9**	**76**	**70**

[1] Table 1. Response Action Final Report, Cass Lake Treating Facility Site, Prepared for Champion International. September 1988.

Table 7

Groundwater Extraction Rates and Precipitation
St. Regis Paper Company Site

Month	OU1										OU3			Extraction System [gpm]	Precipitation [inches]
	401 [gpm]	402 [gpm]	403 [gpm]	404 [gpm]	405 [gpm]	406 [gpm]	407 [gpm]	408 [gpm]	409 [gpm]	410 [gpm]	2401 [gpm]	2402 [gpm]	2403 [gpm]		
Jan-11	5.3	5.5	12.3	11.6	12.2	0.0	0.0	0.0	14.3	3.0	7.0	12.7	18.4	102.3	0.42
Feb-11	5.5	5.5	13.7	12.6	14.5	0.0	0.0	0.0	20.5	4.0	8.4	16.4	18.8	119.9	0.34
Mar-11	5.6	5.2	13.4	12.8	13.2	0.0	0.0	0.0	22.0	3.9	7.7	17.4	17.9	119.1	0.36
Apr-11	5.6	5.2	12.7	12.8	11.9	0.0	0.0	0.0	22.7	4.4	3.7	18.6	18.4	116.0	2.60
May-11	5.5	5.5	12.2	12.4	11.5	0.0	0.0	0.0	22.1	5.1	5.9	17.6	15.7	113.3	3.67
Jun-11	5.2	5.1	11.1	11.4	10.8	0.0	0.0	0.0	19.5	6.1	5.3	16.7	14.6	105.8	3.35
Jul-11	5.3	4.4	9.8	11.0	11.3	0.0	0.0	0.0	19.2	5.1	3.4	17.6	13.1	100.1	1.70
Aug-11	5.1	4.0	9.5	10.0	11.1	0.0	0.0	0.0	16.6	3.9	3.7	18.1	10.4	92.3	2.86
Sep-11	5.3	4.8	10.8	11.7	12.2	0.0	0.0	0.0	21.9	4.5	3.5	20.5	12.1	107.3	1.23
Oct-11	5.5	3.8	11.1	12.7	10.3	0.0	0.0	0.0	25.6	4.0	4.2	21.1	15.4	113.7	0.63
Nov-11	5.2	2.7	9.8	11.6	10.2	0.0	0.0	0.0	25.3	3.1	3.9	19.5	18.8	110.1	0.41
Dec-11	5.1	2.5	9.3	11.1	8.2	0.0	0.0	0.0	24.4	4.1	3.6	19.1	21.0	108.4	0.12
Annual Rate	**5.4**	**4.5**	**11.3**	**11.8**	**11.4**	**0.0**	**0.0**	**0.0**	**21.2**	**4.3**	**5.0**	**17.9**	**16.2**	**109.0**	**17.69**

Table 8
OU3 Annual Average Extraction Rates
St. Regis Paper Company Site

Extraction Well	Maximum Design Capacity[1] [gpm]	Initial Pumping Rate (@ Start-up) [gpm]	Pumping Rate 1996 GW Flow Model [gpm]	Pumping 2005 GW Flow Model [gpm]	2009 Pumping Rate [gpm]	2010 Pumping Rate [gpm]	2011 Pumping Rate [gpm]
W2401	40	20	7	8	5.7	7.9	5.0
W2402	40	20	15	15	13.1	12.6	17.9
W2403	40	20	20	20	14.8	14.7	16.2
Total	**120**	**60**	**42**	**43**	**33.6**	**35.2**	**39.1**

[1] Figure 4. Response Action Final Report. Former City Dump Pit Site. Prepared for Champion International. November 1988.

Table 9
2011 Product Recovery Summary
St. Regis Paper Company Site

Well ID	Product Level [feet below TOR]		Groundwater Level [feet below TOR]		Product Thickness [feet]		Recovered Product [Liters]
	Initial	Final	Initial	Final	Initial	Final	
OU3 – City Dump Pit Area							
W2105	19.03	19.11	21.95	19.13	2.92	---	1.74
W2104	Trace	NA	NA	NA	NA	NA	NA
W2103	None	NA	NA	NA	NA	NA	NA
W2102	None	NA	NA	NA	NA	NA	NA
W2502	None	NA	NA	NA	NA	NA	NA
W2504	7.14	Tr	8.08	7.08	0.94	---	0.61
2401	Heavy Film	NA	NA	NA	NA	NA	NA
S2401	None	NA	NA	NA	NA	NA	NA
S2402	Heavy Film	NA	NA	NA	NA	NA	NA
S2403	None	NA	NA	NA	NA	NA	NA
OU1 – Treating Facility Area							
SO401	None	NA	NA	NA	NA	NA	NA
SO402	None	NA	NA	NA	NA	NA	NA
SO403	None	NA	NA	NA	NA	NA	NA
SO405	None	NA	NA	NA	NA	NA	NA
W118	Light Film	NA	NA	NA	NA	NA	---
Total							**2.35**
							(0.6 gallons)

TOR – top of riser

--- No measurement

NA – Not Applicable (i.e., no product present). These monitoring points are included based on previous findings.

Table 9a
Product Recovery over Time
St. Regis Paper Company Site
[units in Liters]

Date	W2105	W2104	W2103	W2102	W2502	W2504	2401	S2401	S2402	S2403	SO401	SO402	SO403	SO405	W118	Total
04/06/00	7.0	0.3						9.0	2.0						0.3	18.6
04/06/01		1.0						8.0	4.0							13.0
05/06/02	1.2							3.5	1.0						0.3	6.0
05/11/03	3.0							25.0	16.0						0.5	44.5
04/22/04	0.3						16.0	23.0	42.0							81.3
05/13/05	3.1					0.8		9.0	11.0							23.9
09/22/06	3.0						17.6	2.7	42.0						0.2	65.5
05/21/07	2.0					0.2	14.0									16.2
05/23/08	2.0					0.2			18.5							20.7
05/15/09	2.7				0.1	0.4			4.4							7.6
05/15/10	3.2															3.2
05/11/11	1.7					0.6										2.4
Total	29.2	1.3	0.0	0.0	0.1	2.2	47.6	80.2	140.9	0.0	0.0	0.0	0.0	0.0	1.4	302.8

Table 10
2011 Water Elevations
St. Regis Paper Company Site and City Dump Site

[Elevation datum: NAVD 88]

Date:	04/28/11		10/26/11	
Monitoring Location	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)
OU1 - Treating Facility Area				
W104	1304.89		1304.30	
W105R	1303.62		1302.92	
W112	1303.51		1302.42	
W114	1303.84	1303.81	1302.53	1302.72
W115	1303.02		1302.01	
W118	1305.38		1304.93	
W205	1303.63		1302.94	
W209	1304.40		1303.66	
W212	1303.48		1302.61	
W213	1303.40		1302.51	
W215	1303.34		1302.46	
W217	1303.01		1302.14	
W218	1305.37		1304.92	
W219	1303.18		1302.30	
W220	1303.30		1302.39	
W221	1303.04		1302.08	
W222	1303.86		1303.35	
W223	1303.85		1303.20	
MW3	1307.24		1307.47	
W302	1306.83		1306.96	
W306	1303.87		1303.17	
W401	1298.59	1305.50	1292.79	1304.87
W402	1302.96	1303.96	1302.38	1303.17
W403	1301.81	1303.47	1301.31	1302.56
W404	1300.89	1303.51	1300.19	1302.68
W405	1291.98	1303.32	1293.44	1302.51
W406	1303.58		1302.76	
W407	1303.83		1302.97	
W408	1303.45		1302.24	
W409	1297.06	1303.17	1295.91	1302.29
W410	1299.70	1303.56	1300.00	1302.75
W411	1303.67		1302.95	
S401	1305.52		1304.89	
S402	1303.98		1303.19	
S403	1305.08		1302.88	
S405	1305.12		1302.60	
W509	1303.63		1302.71	
W510	1303.51		1302.68	
W511	1303.51		1302.68	
W512	1303.62		1302.80	
W513	1303.42		1302.58	
W514	1303.80		1302.94	
North Staff	1303.0		1302.9	Anomalous - (1301.9)
RR Staff	1303.0		1302.0	
South Staff	1302.9		1302.0	

Table 10
2011 Water Elevations
St. Regis Paper Company Site and City Dump Site

[Elevation datum: NAVD 88]

Date:	04/28/11		10/26/11	
Monitoring Location	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)
OU2 - Containment Vault Area				
W124	1306.78		1307.24	
W125	1306.85		1307.22	
W126	1306.32		1306.39	
W127	1306.29		1306.29	
W128	1306.36		1306.34	
W129	1306.62		1306.63	
W130	1306.34		1306.69	
W231			1306.68	
W324	1306.58		1307.14	
W329	1306.43		1306.74	
W330	1306.12		1307.24	
OU3 - City Dump Area				
W2102	1304.91		1304.57	
W2103	1304.66		1304.31	
W2104	1305.06		1304.72	
W2105	1304.57		1304.22	
W2106	1304.22		1303.85	
W2127	1304.31		1303.99	
Fox Creek @ W2127	1303.2		1303.3	
W2128	1304.28		1303.91	
W2129	1303.77		1303.43	
W2134	1304.32		1303.78	
W2135	1304.28		1303.73	
W2140	1304.20		1303.76	
W2228	1304.49		1304.14	
W2233	1304.98		1304.59	
W2234	1304.37		1303.90	
W2236	1304.88		1304.64	
W2237R	1304.92		1304.69	
W2238	1304.41		1304.10	
W2239	1304.76		1304.53	
W2301	1305.49		1305.33	
W2325	1305.49		1305.35	
W2326	1305.37		1305.18	
W2329	1304.43		1303.99	
W2333	1305.15		1304.91	
W2335	1304.62		1304.21	
W2336	1305.02		1304.78	
W2339	1304.93		1304.69	
W2401	1282.14	1304.11	1286.26	1303.76
W2403	1277.30	1303.13	1290.38	1302.47
W2402	1299.48	1303.33	1298.24	1302.74
S2401	1304.19		1303.86	
S2403	1303.51		1302.79	
S2402	1303.77		1303.25	
W2501	1304.74		1304.36	
W2502	1304.28		1303.85	
W2504	1304.25		1303.92	
W2505	1304.37		1304.06	

Notes:

Table 10
2011 Water Elevations
St. Regis Paper Company Site and City Dump Site

[Elevation datum: NAVD 88]

Date:	04/28/11		10/26/11	
Monitoring Location	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)	Water Elevation [ft. MSL]	Elevation for Capture Zone Analysis (if different) (See Appendix E.)

Elevation used in surficial aquifer evaluation.
Estimated elevation used in surficial aquifer evaluation
Elevation used in lower aquifer evaluation.
Estimated elevation used in Lower aquifer evaluation

Table 11
Groundwater Quality Data - Shallow Surficial Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

			Sys Loc Code	W105R	W114	W115
			Sample Date	5/9/2011	5/4/2011	5/4/2011
			Sample Type Code	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit				
Exceedance Key	**Bold**	Underline				
SVOCs						
Benzo(a)anthracene				0.0028 j ug/l	< 0.0027 ug/l	< 0.0026 ug/l
Chrysene				< 0.0034 ug/l	< 0.0035 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene				< 0.0023 ug/l	< 0.0024 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene				< 0.0025 ug/l	< 0.0026 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l		< 0.0043 ug/l	< 0.0044 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene				< 0.0026 ug/l	< 0.0027 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene				< 0.0025 ug/l	< 0.0026 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l			0.0035 a ug/l	< 0.0035 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l			0.00028 a ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene				< 0.0023 ug/l	< 0.0024 ug/l	< 0.0023 ug/l
Acenaphthene	400 ug/l			< 0.0044 ug/l	< 0.0045 ug/l	< 0.0044 ug/l
Acenaphthylene				< 0.0034 ug/l	< 0.0035 ug/l	< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l		0.0077 j ug/l	< 0.0037 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene				< 0.0029 ug/l	< 0.0030 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l			< 0.0044 ug/l	< 0.0045 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l			< 0.0038 ug/l	< 0.0039 ug/l	< 0.0038 ug/l
Naphthalene	300 ug/l			0.017 j ug/l	0.013 j ug/l	0.011 j ug/l
Phenanthrene				0.0051 j ug/l	< 0.0051 ug/l	< 0.0050 ug/l
Pyrene	200 ug/l			< 0.0035 ug/l	< 0.0036 ug/l	< 0.0035 ug/l
Pentachlorophenol	**1 ug/l**	5.5 ug/l		**44 ug/l**	< 0.070 ug/l	< 0.070 ug/l

N - Sample Type: Normal
< - Not detected at specified value.
a - Estimated value, calculated using some or all values that are estimates.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 11
Groundwater Quality Data - Shallow Surficial Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 12
Groundwater Quality Data - Base of Surficial Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

			Sys Loc Code	W212		W212	W212	W213	W213	W213	W213	W215	W220
			Sample Date	5/9/2011		8/30/2011	10/26/2011	3/30/2011	5/10/2011	8/31/2011	10/26/2011	5/9/2011	3/30/2011
			Sample Type Code	N	FD	N	N	N	N	N	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit											
Exceedance Key	**Bold**	Underline											
SVOCs													
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0026 ug/l		< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0027 ug/l	0.0034 j ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Chrysene			< 0.0034 ug/l	< 0.0034 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0036 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l	< 0.0023 ug/l		< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0024 ug/l	0.0046 j ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l	< 0.0025 ug/l		< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0026 ug/l	0.0039 j ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l		< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0045 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l		< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0027 ug/l	0.0052 j ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l		< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0026 ug/l	0.0049 j ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	< 0.0034 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0035 ug/l	0.0066 a ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l	0.0045 a ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			< 0.0048 ug/l	< 0.0047 ug/l		0.0025 j ug/l	< 0.0048 ug/l	0.012 j ug/l	0.0091 j ug/l	0.0073 j ug/l	< 0.0092 ug/l	0.010 j ug/l	0.0048 j ug/l
Acenaphthene	400 ug/l		0.019 j ug/l	0.019 j ug/l		0.013 j ug/l	0.019 j ug/l	5.7 ug/l	7.1 ug/l	6.6 ug/l	6.6 ug/l	0.077 ug/l	0.033 ug/l
Acenaphthylene			< 0.0034 ug/l	< 0.0034 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	0.11 ug/l	< 0.12 ug/l	< 0.10 ug/l	< 0.099 ug/l	< 0.0034 ug/l	< 0.012 ug/l
Anthracene	2000 ug/l	0.035 ug/l	0.025 ug/l	0.026 ug/l		0.024 ug/l	0.014 j ug/l	0.20 ug/l	0.26 ug/l	0.30 ug/l	0.26 ug/l	0.032 ug/l	0.11 ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l		< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0030 ug/l	0.0055 j ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l	< 0.0044 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0046 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l		< 0.0038 ug/l	< 0.0038 ug/l		< 0.0038 ug/l	< 0.0038 ug/l	0.82 ug/l	1.2 ug/l	1.1 ug/l	1.0 ug/l	< 0.0038 ug/l	0.32 ug/l
Naphthalene	300 ug/l		< 0.40 ug/l	< 0.44 ug/l		0.17 ug/l	0.52 ug/l	1.1 ug/l	2.8 ug/l	2.5 ug/l	2.5 ug/l	0.12 ug/l	0.45 ug/l
Phenanthrene			< 0.0050 ug/l	< 0.0050 ug/l		0.0056 j ug/l	0.0059 j ug/l	0.011 j ug/l	< 0.015 ug/l	0.014 j ug/l	0.012 j ug/l	< 0.0053 ug/l	0.0083 j ug/l
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0053 ug/l	< 0.0053 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l
Pentachlorophenol	**1 ug/l**	5.5 ug/l	**12 ug/l**	**12 ug/l**		**12 ug/l**	**14 ug/l**	0.091 j ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	**11 ug/l**

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
< - Not detected at specified value.
a - Estimated value, calculated using some or all values that are estimates.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 12
Groundwater Quality Data - Base of Surficial Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

		Sys Loc Code	W220		W220	W220
		Sample Date	5/10/2011		8/30/2011	10/27/2011
		Sample Type Code	N	FD	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit				
Exceedance Key	**Bold**	Underline				
SVOCs						
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Chrysene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			< 0.0041 ug/l	< 0.0043 ug/l	0.0040 j ug/l	< 0.0043 ug/l
Acenaphthene	400 ug/l		< 0.031 ug/l	< 0.031 ug/l	0.034 ug/l	0.036 ug/l
Acenaphthylene			< 0.0089 ug/l	< 0.0091 ug/l	< 0.0091 ug/l	< 0.011 ug/l
Anthracene	2000 ug/l	0.035 ug/l	0.089 ug/l	0.081 ug/l	0.094 ug/l	0.10 ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l		< 0.29 ug/l	< 0.30 ug/l	0.29 ug/l	0.33 ug/l
Naphthalene	300 ug/l		< 0.33 ug/l	< 0.33 ug/l	0.38 ug/l	< 0.41 ug/l
Phenanthrene			< 0.0068 ug/l	< 0.0079 ug/l	0.0085 j ug/l	0.0098 j ug/l
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l
Pentachlorophenol	**1 ug/l**	5.5 ug/l	**10 ug/l**	**10 ug/l**	**7.7 ug/l**	**8.8 ug/l**

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
< - Not detected at specified value.
a - Estimated value, calculated using some or all values that are estim
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit a

Table 12
Groundwater Quality Data - Base of Surficial Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Pentachlor	1 ug/l	5.5 ug/l

N - Sample Type: Normal
FD -
< - Not detected at specified value.
a - Estimated value, calculated using some or all values that are estimates.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 13
Groundwater Quality Data - Lower Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

			Sys Loc Code	W306
			Sample Date	5/6/2011
			Sample Type Code	N
Chemical Name	Drinking Water Criteria	Intervention Limit		
Exceedance Key	No Exceed	No Exceed		
SVOCs				
Benzo(a)anthracene				< 0.0026 ug/l
Chrysene				< 0.0034 ug/l
Benzo(b)fluoranthene				< 0.0023 ug/l
Benzo(k)fluoranthene				< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l		< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene				< 0.0026 ug/l
Dibenz(a,h)anthracene				< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l			< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l			ND ug/l
2-Methylnaphthalene				< 0.0023 ug/l
Acenaphthene	400 ug/l			< 0.0044 ug/l
Acenaphthylene				< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l		< 0.0036 ug/l
Benzo(g,h,i)perylene				< 0.0029 ug/l
Fluoranthene	300 ug/l			< 0.0044 ug/l
Fluorene	300 ug/l			< 0.0038 ug/l
Naphthalene	300 ug/l			0.013 j ug/l
Phenanthrene				< 0.0050 ug/l
Pyrene	200 ug/l			< 0.0035 ug/l
Pentachlorophenol	1 ug/l	5.5 ug/l		0.11 j ug/l

N - Sample Type: Normal
< - Not detected at specified value.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 13
Groundwater Quality Data - Lower Aquifer
OU1 - Treating Facility Site
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 14
Surface Water Quality
Cass Lake/Pike Bay Channel
St. Regis Paper Company Site

	Sys Loc Code	**CL-N**	**CL-S**
	Sample Date	**5/3/2011**	**5/3/2011**
	Sample Type Code	**N**	**N**
Chemical Name	Surface Water Standards		
Exceedance Key	No Exceed		
Pentachlorophenol	5.5 ug/l	< 0.070 ug/l	< 0.070 ug/l

Surface Water Standard = 5.5 ug/l @ 7.0 pH
N - Sample Type: Normal

Table 15
Water Quality Data Over Time
[Data typically for 2nd Quarter of each Year]
OU1 - Treating Facility Area
St. Regis Paper Company and City Dump Pit Sites
(concentrations in ug/L)

Top of Surficial Aquifer

	W104			W105			W112			W113			W114			W115			W118		
Year	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1986	0.59 U	1.7	670	0.0011 U	0.023	5 U	0.0015	0.016	6 U	0.0028 U	0.019	5 U	0.0028 U	0.017	5 U	0.0011 U		6 U			
1987	5.9 U	14	1,000	---	---	---	0.0016	0.026	6 U	5.9 U	6.6	100	0.0011 U	0.0093	6 U	0.0011 U	0.012	6 U	1200 U	5,600	150,000
1988	5.9 U	28	990	---	---	---	0.0026	0.0064	6 U	0.039 U	0.0064	6 U	0.0011 U	0.0067	6 U	0.0023 U	0.0074	6 U	590 U	9,000	49,000
1989	9.9 U	10 U	330	---	---	---	0.0022	0.0038 U	6 U	0.0011 U	0.006	6 U	0.0011 U	0.0086	6 U	0.0011 U	0.0064	6 U	200 U	1,500	46,000
1990	9.9 U	10 U	820	---	---	---	0.0021 U	0.0038	6 U	0.0013	0.0019 U	6 U	0.0011 U	0.002	6 U	0.0011 U	0.0019 U	6 U	150 U	1,300	54,000
1991	9.9 U	10 U	200	---	---	---	0.12 U	1.1	6 U	-	1.9	6 U	0.003 U	0.0094	6 U	0.003 U	0.0111	6 U	1200 U	6,700	60,000
1992	9.9 U	10 U	84	---	---	---	0.003 U	0.004 U	6 U	0.028	0.021	6 U	0.0059 U	0.008 U	6 U	0.003 U	0.0086	6 U	---	---	---
1993	0.21 U	0.29 U	250	0.003 U	0.0125	6 U	0.003 U	0.004 U	6 U	0.0059	0.0198	6 U	0.003 U	0.0121	6 U	0.003 U	0.0113	6 U	---	---	---
1994	0.12 U	0.244	110	0.003 U	0.01	3 U	0.0038	0.011	3 U	0.03 U	0.031	3 U	0.003 U	0.022	3 U	0.003 U	0.011	3 U	---	---	---
1995	0.59 U	3.8	590	---	---	---	0.0033	0.003	3 U	---	---	---	0.003 U	0.004	3 U	0.003 U	0.003	3 U	---	---	---
1996	---	---	---	---	---	---				---	---	---	9.9 U	10 U	50 U	9.9 U	10 U	50 U	---	---	---
1997	79 U	80 U	740	---	---	---	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U	9.9 U	10 U	50 U	---	---	---
1998	---	---	---	---	---	---				---	---	---	0.0099 U	0.1 U	5 U	0.099 U	0.1 U	5 U	---	---	---
1999	0.02 U	0.94	1000	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	---	---	---	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	---	---	---
2000	---	---	---	---	---	---				---	---	---	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	---	---	---
2001	0.019 U	14	2400	0.02 U	0.02 U	0.5 U	0.019 U	0.019 U	0.5 U	---	---	---	0.019 U	0.019 U	0.5 U	0.019 U	0.019 U	0.5 U	---	---	---
2002	---	---	---	---	---	---				---	---	---	0.02 U	0.02 U	3 U	0.021 U	0.021 U	3.1 U	---	---	---
2003	0.020 U	30	3200	0.02 U	0.02 U	0.5 U	002 U	0.02 U	0.5 U	---	---	---	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	---	---	---
2004	---	---	---	0.02 U	0.02 U	0.96 U				---	---	---	0.02 U	0.02 U	0.96 U	0.02 U	0.02 U	0.96 U	---	---	---
2005	0.020 U	1.7	310	0.021 U	0.021 U	0.5 U	0.02 U	0.02 U	0.5 U	---	---	---	0.021 U	0.021 U	0.5 U	0.022 U	0.022 U	0.5 U	---	---	---
2006	0.004 U	0.2 U	670	0.004 U	0.031 U	0.13 U	0.006 a	0.0066 U	0.13 U	---	---	---	0.004 U	0.0078 U	0.13 U	0.004 U	0.009 U	0.13 U	---	---	---
2007	0.004 U	0.74	290	0.0097 a	0.78	36	0.0044 a	0.0065 U	0.13 U	---	---	---	0.004 U	0.0065 U	0.13 U	0.004 U	0.0067 U	0.13 U	---	---	---
2008	0.0034 U	0.16 U	220	0.0034 U	1.5 U	66	0.0042 a	0.0070 U	0.080 U	---	---	---	0.0034 U	0.011 U	0.080 U	0.0034 U	0.013 U	0.080 U	---	---	---
2009	---	---	---	0.0036 a	1.7 U	73	---	---	---	---	---	---	0.0034 U	0.0063 U	0.16 U	0.0035 U	0.0050 U	0.16 U	---	---	---
2010	0.0034 U	3.7	290	0.0034 U	0.11	11	0.0105 a	0.084	0.16 U	---	---	---	0.0034 U	0.040	0.16 U	0.0034 U	0.075	0.16 U	0.22 a	1600	43,000
2011	---	---	---	0.0035 a	0.017 J	44	---	---	---	---	---	---	0.0035 U	0.013 J	0.070 U	0.0034 U	0.013 J	0.070 U	---	---	---

--- No sample collected or analyzed.
a Estimated value, calculated using some or all values that are estimates.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration
W105 was replaced with W105R in 2007 and is denoted by a break in the data set.
J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
s - Potential false positive value based on statistical analysis of blank sample data

Table 15
Water Quality Data Over Time
[Data typically for 2nd Quarter of each Year]
OU1 - Treating Facility Area
St. Regis Paper Company and City Dump Pit Sites
(concentrations in ug/L)

Base of Surficial Aquifer

	W205			W209			W212			W213			W215			W217			W218		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1986	0.0028 U	0.013	6 U	0.0191	0.075	6 U	5.8 U	980	8900	12 U	1,300	20,000	0.0011 U		6 U	0.0028 U	0.041	6 U			
1987	---	---	---	---	---	---	120 U	740	4000	120 U	1,100	12,000	5.9 U	11	27,000	0.0011 U	0.011	6 U	0.031	0.038 U	3,000
1988	---	---	---	---	---	---	5.9 U	550	3800	5.9 U	1,200	4,800	5.9 U	8.6	4,400	0.0011 U	0.007	6 U	0.011 U	1.4	860
1989	---	---	---	---	---	---	20 U	230	3500	20 U	1,000	12,000	9.9 U	10 U	2,700	0.0011 U	0.0094	6 U	0.045 U	1.9	78
1990	---	---	---	---	---	---	9.9 U	52	5100	9.9 U	470	5,800	9.9 U	13	4,200	0.0011 U	0.0019 U	6 U	0.09 U	8.8	490
1991	---	---	---	---	---	---	99 U	28	2200	39 U	810	830	99 U	100 U	2,800	0.003 U	0.011	6 U	0.059 U	0.08 U	170
1992	---	---	---	---	---	---	150 U	150 U	2200	9.9 U	150	300	74 U	75 U	1,900	0.0053	0.019	6 U	0.024 U	0.032 U	14
1993	0.003 U	0.0113	6 U	---	---	---	9.9 U	13	2900	9.9 U	170	10 U	9.9 U	5	2,200	0.003 U	0.007	6 U	0.0033	0.0823	26
1994	0.12 U	0.12 U	3 U	---	---	---	9.9 U	10	3900	20 U	130	20 U	9.9 U	4	3,400	0.0059 U	0.015	3 U	0.059 U	0.06 U	13
1995	---	---	---	---	---	---	740 U	750 U	2300	9.9 U	67	10 U	490 U	500 U	1,600	0.003 U	0.003	3 U	0.012 U	0.012 U	26
1996	---	---	---	---	---	---	9.9 U	5	1300	9.9 U	47	50 U	9.9 U	1	1,100	---	---	---	---	---	---
1997	---	---	---	---	---	---	69 U	70 U	950	9.9 U	36	50 U	99 U	100U	1,200	9.9 U	10 U	50 U	9.9 U	10 U	17
1998	---	---	---	---	---	---	0.39 U	1.6	470	0.99 U	21	3	0.69 U	0.7 U	700	---	---	---	---	---	---
1999	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	2.4	430	0.02 U	22	3 U	0.02 U	0.41	410	0.02 U	0.02 U	3 U	0.02 U	0.02 U	45
2000	---	---	---	---	---	---	0.02 U	2.8	69	0.02 U	470	1,900	0.02 U	0.48	68	---	---	---	---	---	---
2001	0.019 U	0.019 U	0.5 U	0.019 U	0.019 U	0.5 U	0.019 U	3.1	110	0.019 U	64	0.5 U	00.19 U	0.55	320	0.02 U	0.02 U	0.5 U	0.019 U	0.019 U	34
2002	---	---	---	---	---	---	0.02 U	1.1	19	0.02 U	36	3 U	0.02 U	0.52	160	---	---	---	---	---	---
2003	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	1.4	45	0.02 U	31	0.5 U	0.02 U	0.3	47	0.02 U	0.02 U	0.5 U	0.02 U	0.12	4
2004	---	---	---	---	---	---	0.02 U	1.8	4.6	0.02 U	21	0.96 U	0.02 U	0.34	78	---	---	---	---	---	---
2005	0.02 U	0.02 U	0.5 U	0.022 U	0.022 U	0.5 U	0.02 U	1.8	46	0.02 U	200	0.5 U	0.021 U	0.64	21	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	110
2006	0.004 U	0.0078 U	0.13 U	0.004 U	0.0088 U	0.13 U	0.004 U	1.7	17	0.004 U	140	0.13 U	0.1 U	0.26 U	13	0.004 U	0.008 U	0.13 U	0.004 U	5.2	66
2007	0.004 U	0.0065 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	1	15	0.004 U	100	0.13 U	0.004 U	0.18 U	2.9	0.004 U	0.0065 U	0.13 U	0.004 U	0.01 U	15
2008	0.0034 U	0.041 U	0.080 U	0.0034 U	0.011 U	0.080 U	0.0034 U	0.90	23	0.0034 U	6.8 U	0.080 U	0.0034 U	0.31	0.080 U	0.0035 U	0.048 U	0.080 U	0.0034 U	0.023	7.8
2009	---	---	---	---	---	---	0.0026 U	0.91	12	0.0026 U	5.4	0.16 U	0.0025 U	0.15	0.16 U	---	---	---	---	---	---
2010	0.0034 U	0.048	0.16 U	0.0034 U	0.064	0.16 U	0.0034 U	0.54	6.6	0.0034 U	3.1 U	0.070 U	0.0034 U	0.23 U	0.16 U	0.0034 U	0.038	0.16 U	0.0034 U	0.071 U	3.1
2011	---	---	---	---	---	---	0.0034 U	0.40 U	12	0.0035 U	2.8	0.070 U	0.0034 U	0.12	0.070 U	---	---	---	---	---	---

--- No sample collected or analyzed.
a Estimated value, calculated using some or all values that are estimates.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration
J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
s - Potential false positive value based on statistical analysis of blank sample data

Table 15
Water Quality Data Over Time
[Data typically for 2nd Quarter of each Year]
OU1 - Treating Facility Area
St. Regis Paper Company and City Dump Pit Sites
(concentrations in ug/L)

Base of Surficial Aquifer													Lower Aquifer								
	W219			W220			W221			W411			W302			W306			MW3		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1986	0.023 U	0.071	6 U	---	---	---	---	---	---	---	---	---	0.0011	---	6 U	0.0011 U	---	6 U			
1987	5.9 U	6 U	7.8	---	---	---	---	---	---	1.1 U	1.9 U	690	0.0011 U	0.012	6 U	0.0011 U	0.016	6 U			
1988	5.9 U	6 U	6 U	---	---	---	---	---	---	---	---	---	0.027	0.049	6 U	0.0049	0.013	6 U			
1989	0.045 U	0.69	16	---	---	---	---	---	---	---	---	---	0.0023 U	0.037	6 U	0.0011 U	0.0047	6 U	0.0011 U	0.0058	6 U
1990	9.9 U	10 U	10 U	---	---	---	---	---	---	---	---	---	0.0011 U	0.018	6 U	0.0011 U	0.003	6 U	0.0011 U	0.028	6 U
1991	9.9 U	10 U	10 U	---	---	---	---	---	---	---	---	---	0.003 U	0.037	6 U	0.003 U	0.32	6 U	0.003 U	0.0048	6 U
1992	9.9 U	10 U	10 U	---	---	---	---	---	---	---	---	---	0.0031	0.019	6 U	0.0059 U	0.008 U	6 U	0.003 U	0.019	6 U
1993	0.095 U	0.246	6 U	---	---	---	---	---	---	---	---	---	0.003 U	0.0095	6 U	0.003 U	0.0092	6 U	0.003 U	0.094	6 U
1994	0.35 U	0.276	3 U	3 U	363	1,000	0.0059 U	0.031	3 U	---	---	---	0.012 U	0.095	3 U	0.0072	0.01	3 U	0.0055	0.015	3 U
1995	0.44 U	0.45 U	3 U	200 U	200	570	0.003 U	0.003	3 U	---	---	---	0.003 U	0.016	3 U	0.003 U	0.007	3 U	0.003 U	0.017	3 U
1996	---	---	---	9.9 U	76	180	---	---	---	---	---	---	---	---	---	9.9 U	10 U	50 U	---	---	---
1997	9.9 U	10 U	50 U	39 U	48	200	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U
1998	---	---	---	1.2 U	23	98	---	---	---	---	---	---	---	---	---	0.099 U	0.1 U	5 U	---	---	---
1999	0.02 U	0.14	3 U	0.02 U	11	72	0.02 U	0.02 U	3 U	0.02 U	0.03	350	0.02 U	0.02 U	3 U	0.02 U	0.04	3 U	0.02 U	0.02 U	3 U
2000	0.02 U	0.21	3 U	0.02 U	21	88	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	3 U	---	---	---
2001	0.02 U	0.22	0.5 U	0.019 U	18	24	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	14	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U
2002	0.021 U	0.22	3.1 U	0.02 U	16	4.5	---	---	---	---	---	---	---	---	---	0.021 U	0.023	0.5 U	---	---	---
2003	0.02 U	0.11	0.5 U	0.02 U	7.4	51	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	12	0.02 U	0.042	0.5 U	0.02 U	0.031	0.5 U	0.02 U	0.02 U	0.5 U
2004	0.02 U	0.13	0.96 U	0.02 U	14	7.5	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	0.96 U	---	---	---
2005	0.02 U	0.12	0.5 U	0.02 U	16	9.6	0.02 U	0.02 U	0.5 U	0.023 U	0.18 U	17	0.02 U	0.02 U	0.5 U	0.021 U	0.021 U	0.5 U	0.021 U	0.021 U	0.5 U
2006	0.004 U	0.077 U	0.13 U	0.095 U	12	7.1	0.004 U	0.0065 U	0.13 U	0.004 U	0.021 U	31	0.004	0.029 U	0.14 J	0.004 U	0.034 U	0.19 J	0.004 U	0.0065 U	0.13 U
2007	0.004 U	0.067 U	0.13 U	0.0052 a	9.6	12	0.004 U	0.0065 U	0.13 U	0.004 U	0.039 U	11	0.004 U	0.035	0.13 U	0.004 U	0.011 J	0.13 U	0.004 U	0.024 U	0.013 U
2008	0.0035 U	0.055 U	0.080 U	0.0077 a	4.9	17	0.0034 U	0.013 U	0.080 U	0.0035 U	0.020 U	15	0.0035 U	0.041 U	0.080 U	0.0034 U	0.038 U	0.080 U	0.0034 U	0.027 U	0.080 U
2009	---	---	---	0.0044 a	5.2	11	---	---	---	---	---	---	---	---	---	0.0035 U	0.020 U	0.16 U	---	---	---
2010	0.0034 U	0.099	0.16 U	0.0034 U	0.44 U	11 U	0.0034 U	0.030	0.16 U	0.0034 U	0.079	7.1	0.0034 U	0.078	0.070 U	0.0034 U	0.052	0.070 U	---	---	---
2011	---	---	---	0.0034 U	0.33 U	10	---	---	---	---	---	---	---	---	---	0.0034 U	0.013 J	0.11 J	---	---	---

--- No sample collected or analyzed.
a Estimated value, calculated using some or all values that are estimates.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration
J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
s - Potential false positive value based on statistical analysis of blank sample data

Table 15
Water Quality Data Over Time
[Data typically for 2nd Quarter of each Year]
OU1 - Treating Facility Area
St. Regis Paper Company and City Dump Pit Sites
(concentrations in ug/L)

Surface Water						
	CL-N			CL-S		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
SWQ			5.5			5.5
1986	0.001 U	s	5 U	0.001 U	s	5 U
1987	---	---	6 U	---	---	6 U
1988	---	---	10 U	---	---	10 U
1989	---	---	6 U	---	---	6 U
1990	0.001 U	0.0072	6 U	0.001 U	0.0076	6 U
1991	---	---	10 U	---	---	10 U
1992	---	---	10 U	---	---	10 U
1993	---	---	10 U	---	---	10 U
1994	---	---	7	---	---	75
1995	---	---	3 U	---	---	3 U
1996	---	---	50 U	---	---	50 U
1997	---	---	50 U	---	---	50 U
1998	---	---	5 U	---	---	5 U
1999	---	---	0.5 U	---	---	0.5 U
2000	---	---	0.5 U	---	---	2.2
2001	---	---	0.5 U	---	---	0.5 U
2002	---	---	0.5 U	---	---	0.5 U
2003	---	---	0.5 U	---	---	0.5 U
2004	---	---	0.5 U	---	---	0.5 U
2005	---	---	0.5 U	---	---	0.5 U
2006	---	---	0.13 U	---	---	0.13 U
2007	---	---	0.13 U	---	---	0.13 U
2008	---	---	0.080 U	---	---	0.080 U
2009	---	---	0.16 U	---	---	0.16 U
2010	---	---	0.16 U	---	---	0.16 U
2011	---	---	0.070 U	---	---	0.070 U

--- No sample collected or analyzed.
U Value is non-detect at the method reporting limit.
SWQ - Surface Water Criteria @ pH = 7.0
Shaded cell indicates concentration above response action level (SWQ).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration
J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
s - Potential false positive value based on statistical analysis of blank sample data

Table 16
Groundwater Quality Data - Comparison to Intervention Limits
OU1 - Treating Facility Site
St. Regis Paper Company Site

	Sys Loc Code	W212		W212	W212	W213	W213	W213	W213
	Sample Date	5/9/2011		8/30/2011	10/26/2011	3/30/2011	5/10/2011	8/31/2011	10/26/2011
	Sample Type Code	N	FD	N	N	N	N	N	N
Chemical Name	Intervention Limits								
Exceedance Key	**Bold**								
Total Petroleum Hydrocarbons									
Diesel Range Organics-silica gel cleanup	200 ug/l	17 j ug/l	17 j ug/l	28 j ug/l	< 16 ug/l	49 j ug/l	58 ug/l	120 ug/l	100 ug/l
VOCs									
Benzene	114 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	0.13 j ug/l	0.18 j ug/l	0.20 j ug/l	0.13 j ug/l
Ethyl benzene	68 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	0.42 j ug/l	0.71 ug/l	0.78 ug/l	0.57 ug/l
Toluene	253 ug/l	< 0.052 ug/l	< 0.052 ug/l	0.070 j ug/l	< 0.052 ug/l	< 0.052 ug/l	0.49 j ug/l	0.50 ug/l	< 0.37 ug/l
Xylene m & p	166 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	0.15 j ug/l	0.27 j ug/l	0.26 j ug/l	< 0.20 ug/l
Xylene, o-	166 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	0.18 j ug/l	0.35 j ug/l	0.34 j ug/l	0.26 j ug/l
SVOCs									
Pentachlorophenol	**5.5 ug/l**	**12 ug/l**	**12 ug/l**	**12 ug/l**	**14 ug/l**	0.091 j ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l
Benzo(a)pyrene	0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0045 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Anthracene	**0.029 ug/l**	0.025 ug/l	0.026 ug/l	0.024 ug/l	0.014 j ug/l	**0.20 ug/l**	**0.26 ug/l**	**0.30 ug/l**	**0.26 ug/l**
1,6-Dinitropyrene		--	--	--	--	--	--	--	--
1,8-Dinitropyrene		--	--	--	--	--	--	--	--
1-Nitropyrene		--	--	--	--	--	--	--	--
2-Nitrofluorene		--	--	--	--	--	--	--	--
3-Methylcholanthrene		--	--	--	--	--	--	--	--
5-Methylchrysene		--	--	--	--	--	--	--	--
5-Nitroacenapthene		--	--	--	--	--	--	--	--
6-Nitrochrysene		--	--	--	--	--	--	--	--
7,12-Dimethylbenz(a)anthracene		--	--	--	--	--	--	--	--
7h-Dibenzo(c,g)carbazole		--	--	--	--	--	--	--	--
Benzo[j]fluoranthene		--	--	--	--	--	--	--	--
Dibenz(a,h)acridine		--	--	--	--	--	--	--	--
Dibenz(a,j)acridine		--	--	--	--	--	--	--	--
Dibenzo(a,e)pyrene		--	--	--	--	--	--	--	--
Dibenzo(a,l)pyrene		--	--	--	--	--	--	--	--
Dibenzo[a,h]pyrene		--	--	--	--	--	--	--	--
Dibenzo[a,i]pyrene		--	--	--	--	--	--	--	--

Table 16
Groundwater Quality Data - Comparison to Intervention Limits
OU1 - Treating Facility Site
St. Regis Paper Company Site

	Sys Loc Code	W212		W212	W212	W213	W213	W213	W213
	Sample Date	5/9/2011		8/30/2011	10/26/2011	3/30/2011	5/10/2011	8/31/2011	10/26/2011
	Sample Type Code	N	FD	N	N	N	N	N	N
Chemical Name	Intervention Limits								
Exceedance Key	**Bold**								
Chlorinated Dioxins / Furans									
2,3,7,8-Dioxin, tetra	0.0038 pg/l	< 0.556 pg/l	< 0.360 pg/l	< 0.174 pg/l	< 0.768 pg/l	< 0.335 pg/l	< 0.706 pg/l	< 0.179 pg/l	< 1.33 pg/l
1,2,3,7,8-Dioxin penta	0.0084 pg/l	< 0.514 pg/l	< 0.389 pg/l	< 0.148 pg/l	< 0.554 pg/l	< 0.342 pg/l	< 0.628 pg/l	< 0.0915 pg/l	< 0.997 pg/l
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	< 0.463 pg/l	< 0.286 pg/l	< 0.135 pg/l	< 0.690 pg/l	< 0.473 pg/l	< 0.590 pg/l	< 0.161 pg/l	< 0.820 pg/l
1,2,3,6,7,8-Dioxin, hexa	**0.38 pg/l**	< 0.438 pg/l	< 0.269 pg/l	< 0.107 pg/l	< 0.606 pg/l	**0.463 EMPC pg/l**	< 0.557 pg/l	< 0.127 pg/l	< 0.720 pg/l
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	< 0.437 pg/l	< 0.269 pg/l	< 0.113 pg/l	< 0.616 pg/l	< 0.445 pg/l	< 0.555 pg/l	< 0.134 pg/l	< 0.731 pg/l
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	1.33 EMPC pg/l	0.976 EMPC pg/l	< 0.506 pg/l	< 0.938 pg/l	**16.0 pg/l**	4.57 EMPC pg/l	< 2.06 pg/l	< 3.88 pg/l
Dioxin octa	380 pg/l	< 4.30 pg/l	< 4.19 pg/l	< 2.28 pg/l	< 3.49 pg/l	159 pg/l	71.0 pg/l	< 19.3 pg/l	< 45.6 pg/l
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	< 0.605 pg/l	< 0.351 pg/l	< 0.219 pg/l	< 0.558 pg/l	< 0.367 pg/l	< 0.721 pg/l	< 0.168 pg/l	< 0.819 pg/l
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	< 0.625 pg/l	< 0.365 pg/l	< 0.0962 pg/l	< 0.494 pg/l	< 0.359 pg/l	< 0.376 pg/l	< 0.131 pg/l	< 0.620 pg/l
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	< 0.602 pg/l	< 0.351 pg/l	< 0.0962 pg/l	< 0.525 pg/l	< 0.346 pg/l	< 0.362 pg/l	< 0.132 pg/l	< 0.658 pg/l
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	< 5.09 pg/l	< 0.597 pg/l	< 0.0924 pg/l	< 0.473 pg/l	< 0.288 pg/l	< 0.601 pg/l	< 0.0877 pg/l	< 0.551 pg/l
1,2,3,6,7,8-Dibenzofuran, hexa	**0.19 pg/l**	**3.86 j pg/l**	< 0.298 pg/l	< 0.0772 pg/l	< 0.421 pg/l	< 0.261 pg/l	< 0.545 pg/l	< 0.0743 pg/l	< 0.491 pg/l
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	< 0.523 pg/l	< 0.402 pg/l	< 0.102 pg/l	< 0.569 pg/l	< 0.352 pg/l	< 0.734 pg/l	< 0.0972 pg/l	< 0.665 pg/l
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	< 0.457 pg/l	< 0.351 pg/l	< 0.0905 pg/l	< 0.482 pg/l	< 0.307 pg/l	< 0.642 pg/l	< 0.0867 pg/l	< 0.563 pg/l
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	13.0 j pg/l	< 1.33 pg/l	< 0.151 pg/l	< 0.477 pg/l	3.93 j pg/l	< 1.12 pg/l	0.546 EMPC pg/l	< 0.640 pg/l
1,2,3,4,7,8,9-Dibenzofuran, hepta	**0.95 pg/l**	**4.93 EMPC pg/l**	< 0.643 pg/l	< 0.191 pg/l	< 0.645 pg/l	< 0.400 pg/l	< 0.859 pg/l	< 0.154 pg/l	< 0.863 pg/l
Dibenzofuran octa	190 pg/l	41.7 j pg/l	3.50 j pg/l	< 0.262 pg/l	< 1.37 pg/l	16.7 j pg/l	9.09 j pg/l	2.05 EMPC pg/l	< 5.20 pg/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
EMPC - Estimated maximum possible concentration.

Table 16
Groundwater Quality Data - Comparison to Intervention Limits
OU1 - Treating Facility Site
St. Regis Paper Company Site

	Sys Loc Code	W215		W220	W220		W220	W220
	Sample Date	5/9/2011		3/30/2011	5/10/2011		8/30/2011	10/27/2011
	Sample Type Code	N	FD	N	N	FD	N	N
Chemical Name	Intervention Limits							
Exceedance Key	**Bold**							
Total Petroleum Hydrocarbons								
Diesel Range Organics-silica gel cleanup	200 ug/l	--	--	22 j ug/l	29 j ug/l	22 j ug/l	37 j ug/l	29 j ug/l
VOCs								
Benzene	114 ug/l	--	--	0.060 j ug/l	< 0.090 ug/l	< 0.090 ug/l	0.11 j ug/l	0.070 j ug/l
Ethyl benzene	68 ug/l	--	--	0.23 j ug/l	0.18 j ug/l	0.18 j ug/l	0.24 j ug/l	0.25 j ug/l
Toluene	253 ug/l	--	--	0.19 j ug/l	< 0.18 ug/l	< 0.22 ug/l	0.22 j ug/l	< 0.18 ug/l
Xylene m & p	166 ug/l	--	--	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l
Xylene, o-	166 ug/l	--	--	0.090 j ug/l	< 0.074 ug/l	0.080 j ug/l	0.11 j ug/l	0.11 j ug/l
SVOCs								
Pentachlorophenol	**5.5 ug/l**	< 0.070 ug/l	--	**11 ug/l**	**10 ug/l**	**10 ug/l**	**7.7 ug/l**	**8.8 ug/l**
Benzo(a)pyrene	0.00051 ug/l	< 0.0043 ug/l	--	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Anthracene	**0.029 ug/l**	**0.032 ug/l**	--	**0.11 ug/l**	**0.089 ug/l**	**0.081 ug/l**	**0.094 ug/l**	**0.10 ug/l**
1,6-Dinitropyrene		< 6.5 ng/l	< 6.5 ng/l	--	< 6.5 ng/l	--	--	--
1,8-Dinitropyrene		< 7.9 ng/l	< 7.9 ng/l	--	< 7.9 ng/l	--	--	--
1-Nitropyrene		< 2.4 ng/l	< 2.4 ng/l	--	< 2.4 ng/l	--	--	--
2-Nitrofluorene		< 4.7 ng/l	< 4.7 ng/l	--	< 4.7 ng/l	--	--	--
3-Methylcholanthrene		< 5.5 ng/l	< 5.5 ng/l	--	< 5.5 ng/l	--	--	--
5-Methylchrysene		< 0.82 ng/l	< 0.82 ng/l	--	< 0.82 ng/l	--	--	--
5-Nitroacenapthene		< 5.8 ng/l	< 5.8 ng/l	--	< 5.8 ng/l	--	--	--
6-Nitrochrysene		< 0.98 ng/l	< 0.98 ng/l	--	< 0.98 ng/l	--	--	--
7,12-Dimethylbenz(a)anthracene		< 1.1 ng/l	< 1.1 ng/l	--	< 1.1 ng/l	--	--	--
7h-Dibenzo(c,g)carbazole		< 0.99 ng/l	< 0.99 ng/l	--	< 0.99 ng/l	--	--	--
Benzo[j]fluoranthene		< 1.2 ng/l	< 1.2 ng/l	--	< 1.2 ng/l	--	--	--
Dibenz(a,h)acridine		< 1.5 ng/l	< 1.5 ng/l	--	< 1.5 ng/l	--	--	--
Dibenz(a,j)acridine		< 0.83 ng/l	< 0.83 ng/l	--	< 0.83 ng/l	--	--	--
Dibenzo(a,e)pyrene		< 1.7 ng/l	< 1.7 ng/l	--	< 1.7 ng/l	--	--	--
Dibenzo(a,l)pyrene		< 1.3 ng/l	< 1.3 ng/l	--	< 1.3 ng/l	--	--	--
Dibenzo[a,h]pyrene		< 1.0 ng/l	< 1.0 ng/l	--	< 1.0 ng/l	--	--	--
Dibenzo[a,i]pyrene		< 1.2 ng/l	< 1.2 ng/l	--	< 1.2 ng/l	--	--	--

Table 16
Groundwater Quality Data - Comparison to Intervention Limits
OU1 - Treating Facility Site
St. Regis Paper Company Site

	Sys Loc Code	W215		W220	W220		W220	W220
	Sample Date	5/9/2011		3/30/2011	5/10/2011		8/30/2011	10/27/2011
	Sample Type Code	N	FD	N	N	FD	N	N
Chemical Name	Intervention Limits							
Exceedance Key	**Bold**							
Chlorinated Dioxins / Furans								
2,3,7,8-Dioxin, tetra	0.0038 pg/l	--	--	< 0.438 pg/l	< 0.509 pg/l	< 0.390 pg/l	< 0.330 pg/l	< 1.50 pg/l
1,2,3,7,8-Dioxin penta	0.0084 pg/l	--	--	< 0.337 pg/l	< 0.394 pg/l	< 0.325 pg/l	< 0.260 pg/l	< 1.33 pg/l
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	--	--	< 0.335 pg/l	< 0.394 pg/l	< 0.324 pg/l	< 0.258 pg/l	< 1.29 pg/l
1,2,3,6,7,8-Dioxin, hexa	**0.38 pg/l**	--	--	< 0.316 pg/l	< 0.372 pg/l	< 0.306 pg/l	< 0.204 pg/l	< 1.14 pg/l
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	--	--	< 0.315 pg/l	< 0.372 pg/l	< 0.305 pg/l	< 0.215 pg/l	< 1.15 pg/l
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	--	--	< 0.259 pg/l	< 0.367 pg/l	0.755 EMPC pg/l	< 0.604 pg/l	< 1.17 pg/l
Dioxin octa	380 pg/l	--	--	< 2.61 pg/l	< 2.21 pg/l	< 4.17 pg/l	< 2.98 pg/l	< 3.09 pg/l
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	--	--	< 0.424 pg/l	< 0.412 pg/l	< 0.392 pg/l	< 0.287 pg/l	< 1.43 pg/l
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	--	--	< 0.336 pg/l	< 0.363 pg/l	< 0.332 pg/l	< 0.218 pg/l	< 0.787 pg/l
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	--	--	< 0.324 pg/l	< 0.350 pg/l	< 0.321 pg/l	< 0.220 pg/l	< 0.836 pg/l
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	--	--	< 0.254 pg/l	< 0.480 pg/l	< 0.419 pg/l	< 0.198 pg/l	< 0.747 pg/l
1,2,3,6,7,8-Dibenzofuran, hexa	**0.19 pg/l**	--	--	< 0.230 pg/l	< 0.435 pg/l	< 0.379 pg/l	< 0.166 pg/l	< 0.665 pg/l
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	--	--	< 0.310 pg/l	< 0.586 pg/l	< 0.511 pg/l	< 0.218 pg/l	< 0.900 pg/l
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	--	--	< 0.271 pg/l	< 0.512 pg/l	< 0.447 pg/l	< 0.195 pg/l	< 0.762 pg/l
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	--	--	< 0.236 pg/l	< 0.468 pg/l	< 2.04 pg/l	< 0.260 pg/l	< 0.719 pg/l
1,2,3,4,7,8,9-Dibenzofuran, hepta	**0.95 pg/l**	--	--	< 0.330 pg/l	< 0.656 pg/l	< 0.492 pg/l	< 0.329 pg/l	< 0.970 pg/l
Dibenzofuran octa	190 pg/l	--	--	< 0.369 pg/l	< 0.823 pg/l	6.78 j pg/l	< 0.476 pg/l	< 2.65 pg/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
j - Reported value is less than the stated laboratory quantitation limit and
EMPC - Estimated maximum possible concentration.

Table 17
Groundwater Quality Data - Surficial Aquifer
OU2 - Containment Vault Area
St. Regis Paper Company Site

		Sys Loc Code	W124	W125	W126	W127	W128	W129	W130
		Sample Date	5/1/2011	5/1/2011	5/2/2011	5/1/2011	5/1/2011	5/2/2011	5/2/2011
		Sample Type Code	N	N	N	N	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit							
Exceedance Key	No Exceed	No Exceed							
SVOCs									
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0027 ug/l	< 0.0027 ug/l	< 0.0027 ug/l	< 0.0026 ug/l	< 0.0027 ug/l
Chrysene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0034 ug/l	< 0.0035 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l	< 0.0023 ug/l	< 0.0024 ug/l	< 0.0024 ug/l	< 0.0024 ug/l	< 0.0023 ug/l	< 0.0024 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0025 ug/l	< 0.0026 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0043 ug/l	< 0.0044 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0027 ug/l	< 0.0027 ug/l	< 0.0027 ug/l	< 0.0026 ug/l	< 0.0027 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0025 ug/l	< 0.0026 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0034 ug/l	< 0.0035 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			0.0027 j ug/l	0.012 j ug/l	0.011 j ug/l	0.0084 j ug/l	0.0048 j ug/l	0.0034 j ug/l	0.0040 j ug/l
Acenaphthene	400 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0045 ug/l	< 0.0045 ug/l	< 0.0045 ug/l	< 0.0044 ug/l	< 0.0045 ug/l
Acenaphthylene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0034 ug/l	< 0.0035 ug/l
Anthracene	2000 ug/l	0.035 ug/l	< 0.0036 ug/l	0.013 j ug/l	0.0095 j ug/l	0.0045 j ug/l	0.029 ug/l	0.018 j ug/l	0.0069 j ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l	< 0.0030 ug/l	< 0.0030 ug/l	< 0.0030 ug/l	< 0.0029 ug/l	< 0.0030 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0045 ug/l	< 0.0045 ug/l	< 0.0045 ug/l	< 0.0044 ug/l	< 0.0045 ug/l
Fluorene	300 ug/l		< 0.0038 ug/l	< 0.0038 ug/l	< 0.0039 ug/l	< 0.0039 ug/l	< 0.0039 ug/l	< 0.0038 ug/l	< 0.0039 ug/l
Naphthalene	300 ug/l		0.032 ug/l	0.049 ug/l	0.051 ug/l	0.035 ug/l	0.026 ug/l	0.015 j ug/l	0.021 ug/l
Phenanthrene			< 0.0050 ug/l	< 0.0050 ug/l	< 0.0052 ug/l	< 0.0052 ug/l	< 0.0051 ug/l	< 0.0050 ug/l	< 0.0051 ug/l
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0035 ug/l	< 0.0036 ug/l
Pentachlorophenol	1 ug/l	5.5 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l

N - Sample Type: Normal
< - Not detected at specified value.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 17
Groundwater Quality Data - Surficial Aquifer
OU2 - Containment Vault Area
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 18
Groundwater Quality Data - Lower Aquifer
OU2 - Containment Vault Area
St. Regis Paper Company Site

			Sys Loc Code	W324	W329	W330
			Sample Date	5/1/2011	5/2/2011	5/2/2011
			Sample Type Code	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit				
Exceedance Key	No Exceed	No Exceed				
SVOCs						
Benzo(a)anthracene				< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Chrysene				< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene				< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene				< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l		< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene				< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene				< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l			ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene				0.0024 j ug/l	0.0037 j ug/l	0.020 ug/l
Acenaphthene	400 ug/l			< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Acenaphthylene				< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l		< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene				< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l			< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l			< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l
Naphthalene	300 ug/l			0.016 j ug/l	0.015 j ug/l	0.051 ug/l
Phenanthrene				< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l
Pyrene	200 ug/l			< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l
Pentachlorophenol	1 ug/l	5.5 ug/l		< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l

N - Sample Type: Normal
< - Not detected at specified value.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 18
Groundwater Quality Data - Lower Aquifer
OU2 - Containment Vault Area
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 19
Groundwater Quality Data Over Time
OU2 - Containment Vault Area
[Data typically fro 2nd Quarter of Each Year]
St. Regis Paper Company and City Dump Pit Sites

(concentrations in ug/L)

Surficial Aquifer																					
	W124			W125			W126			W127			W128			W129			W130		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1987	0.0011 U	0.0073	6 U	0.0011 U	0.0068	6 U	0.0013 U	0.0078	6 U	0.0011 U	0.0065	6 U	0.0011 U	0.0077	6 U	---	---	---	---	---	---
1988	0.0023 U	0.028	6 U	0.0011 U	0.0034	6 U	0.0011 U	0.0029	6 U	0.0011 U	0.0039	6 U	0.0011 U	0.0027	6 U	---	---	---	---	---	---
1989	0.0011 U	0.0048	6 U	0.0011 U	0.0047	6 U	0.0011 U	0.0062	6 U	0.0011 U	0.0032	6 U	0.0011 U	0.0028	6 U	---	---	---	---	---	---
1990	0.0011 U	0.0047	6 U	0.0023 U	0.0038 U	6 U	0.0011 U	0.0029	6 U	0.0011 U	0.0032	6 U	0.0011 U	0.0035	6 U	---	---	---	---	---	---
1991	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004	6 U	0.003 U	0.004 U	6 U	---	---	---	---	---	---
1992	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.0056	6 U	0.003 U	0.004 U	6 U
1993	0.003 U	0.004 U	6 U	0.003 U	0.0047	6 U	0.003 U	0.00436	6 U	---	---	---	0.003 U	0.00414	6 U	0.003 U	0.003 U	6 U	0.0059 U	0.008 U	6 U
1994	0.003 U	0.004	3 U	0.003 U	0.004	3 U	0.003 U	0.005	3 U	---	---	---	0.003 U	0.018	3 U	0.003 U	0.003	3 U	0.003 U	0.004	3 U
1995	0.003 U	0.003 U	3 U	0.003 U	0.004	3 U	0.003 U	0.009	3 U	---	---	---	0.003 U	0.003	3 U	0.003 U	0.003	3 U	0.003 U	0.003	3 U
1996	9.9 U	10 U	3 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U
1997	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U
1998	0.099 U	0.1 U	0.5 U	0.099 U	0.1 U	0.5 U	0.099 U	0.1 U	5 U	---	---	---	0.0099 U	0.1 U	0.5 U	0.099 U	0.1 U	0.5 U	0.099 U	0.1 U	5 U
1999	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	---	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U
2000	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U
2001	0.019 U	0.019 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.019 U	0.019 U	0.5 U	0.02 U	0.02 U	0.5 U
2002	0.021 U	0.021 U	3.1 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	2.9 U	0.02 U	0.02 U	2.9 U	0.02 U	0.02 U	3 U	0.021 U	0.021 U	3.1 U	0.02 U	0.02 U	3 U
2003	0.02 U	0.021	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U
2004	0.02 U	0.02 U	0.96 U	0.02 U	0.02 U	0.96 U	0.02 U	0.02 U	0.096 U	0.02 U	0.02 U	0.97 U	0.02 U	0.02 U	0.98 U	0.02 U	0.02 U	0.99 U	0.02 U	0.02 U	0.98 U
2005	0.021 U	0.021 U	0.5 U	0.21 U	0.021 U	0.5 U	0.021 U	0.021 U	0.5 U	0.022 U	0.022 U	0.5 U	0.02 U	0.022 U	0.5 U	0.021 U	0.021 U	0.5 U	0.022 U	0.022 U	0.5 U
2006	0.004 U	0.0081 J	0.13 U	0.004	0.0065 U	0.13 U	0.004 U	0.0023 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.01 J	0.13 U	0.0043 U	0.0078 J	0.13 U
2007	0.004 U	0.0074 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.0042 U	0.0068 U	0.13 U	0.0034 U	0.0042 U	0.08 U	0.0041 U	0.0066 U	0.13 U	0.0041 U	0.0066 U	0.13 U	0.0042 U	0.0088 U	0.13 U
2008	0.0034 U	0.059 U	0.080 U	0.0034 U	0.040 U	0.080 U	0.0035 U	0.077 U	0.080 U	0.0034 U	0.049 U	0.080 U	0.0034 U	0.092 U	0.080 U	0.0034 U	0.027 U	0.080 U	0.0036 U	0.086 U	0.080 U
2009	0.0034 U	0.080	0.16 U	0.0034 U	0.075	0.16 U	0.0034 U	0.072	0.16 U	0.0034 U	0.042	0.16 U	0.0034 U	0.028 U	0.16 U	0.0034 U	0.033	0.16 U	0.0034 U	0.11	0.16 U
2010	0.0034 U	0.10	0.16 U	0.0120	0.080	0.16 U	0.0034 U	0.13 U	0.16 U	0.0034 U	0.067 U	0.16 U	0.0034 U	0.055 U	0.16 U	0.0034 U	0.050 U	0.16 U	0.0034 U	0.17 U	0.16 U
2011	0.0034 U	0.032	0.070 U	0.0034 U	0.049	0.070 U	0.0035 U	0.051	0.070 U	0.0035 U	0.035	0.070 U	0.0035 U	0.026	0.070 U	0.0034 U	0.015 J	0.070 U	0.0035 U	0.021	0.070 U

--- No sample collected or analyzed.
a Estimated value, calculated using some or all values that are estimates.
U Value is non-detect at the method reporting limit.
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration

Table 19
Groundwater Quality Data Over Time
OU2 - Containment Vault Area
[Data typically fro 2nd Quarter of Each Year]
St. Regis Paper Company and City Dump Pit Sites

(concentrations in ug/L)

Lower Aquifer									
	W324			W329			W330		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1
2009	0.0035 a	0.03	0.016 U	0.0034 U	0.032	0.016 U	0.0034 U	0.048	0.016 U
2010	0.0034 U	0.048 U	0.16 U	0.0037 a	0.13	0.16 U	0.0034 U	0.13 U	0.16 U
2011	0.0034 U	0.016 J	0.070 U	0.0034 U	0.015 J	0.070 U	0.0034 U	0.051	0.070 U

Table 20
Groundwater Quality Data - Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2106		W2127	W2128	W2128	W2128	W2129	W2135	W2140
		Sample Date	5/8/2011		5/3/2011	5/8/2011	8/30/2011	10/26/2011	5/3/2011	5/7/2011	5/8/2011
		Sample Type Code	N	FD	N	N	N	N	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit									
Exceedance Key	**Bold**	Underline									
SVOCs											
Benzo(a)anthracene			< 0.60 ug/l	< 0.60 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.60 ug/l	< 0.0026 ug/l
Chrysene			< 0.79 ug/l	< 0.79 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.79 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.59 ug/l	< 0.59 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.59 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.83 ug/l	< 0.83 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.83 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.66 ug/l	< 0.66 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.66 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.69 ug/l	< 0.69 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.69 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.76 ug/l	< 0.76 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.76 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.68 ug/l	< 0.68 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.68 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			< 0.24 ug/l	< 0.24 ug/l	< 0.0023 ug/l	0.27 ug/l	0.21 ug/l	0.20 ug/l	< 0.0023 ug/l	< 0.24 ug/l	2.4 ug/l
Acenaphthene	400 ug/l		40 ug/l	41 ug/l	< 0.0044 ug/l	0.35 ug/l	0.28 ug/l	0.34 ug/l	< 0.0044 ug/l	< 0.29 ug/l	2.1 ug/l
Acenaphthylene			2.5 j ug/l	2.0 j ug/l	< 0.0034 ug/l	< 0.0061 ug/l	< 0.0046 ug/l	< 0.0048 ug/l	< 0.0034 ug/l	< 0.24 ug/l	0.11 ug/l
Anthracene	2000 ug/l	0.035 ug/l	3.6 j ug/l	3.2 j ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.62 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene			< 0.82 ug/l	< 0.82 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.82 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.66 ug/l	< 0.66 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.66 ug/l	0.040 ug/l
Fluorene	300 ug/l		20 ug/l	22 ug/l	< 0.0038 ug/l	0.046 ug/l	0.041 ug/l	0.045 ug/l	< 0.0038 ug/l	< 0.33 ug/l	1.5 ug/l
Naphthalene	300 ug/l		< 0.47 ug/l	< 0.37 ug/l	0.023 ug/l	4.9 ug/l	3.7 ug/l	3.6 ug/l	0.025 ug/l	< 0.37 ug/l	5.6 ug/l
Phenanthrene			8.5 j ug/l	7.5 j ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.49 ug/l	< 0.37 ug/l
Pyrene	200 ug/l		< 0.74 ug/l	< 0.74 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.74 ug/l	< 0.011 ug/l
Pentachlorophenol	**1 ug/l**	5.5 ug/l	**7800 ug/l**	**7700 ug/l**	< 0.070 ug/l	**1.9 ug/l**	**2.0 ug/l**	**2.1 ug/l**	< 0.070 ug/l	0.28 j ug/l	**910 ug/l**

Table 20
Groundwater Quality Data - Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2106		W2127	W2128	W2128	W2128	W2129	W2135	W2140
		Sample Date	5/8/2011		5/3/2011	5/8/2011	8/30/2011	10/26/2011	5/3/2011	5/7/2011	5/8/2011
		Sample Type Code	N	FD	N	N	N	N	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit									
Exceedance Key	**Bold**	Underline									
Chlorinated Dioxins / Furans											
2,3,7,8-Dioxin, tetra		0.0038 pg/l	< 0.413 pg/l	--	--	--	--	--	--	--	--
1,2,3,7,8-Dioxin penta		0.0084 pg/l	< 0.494 pg/l	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Dioxin, hexa		0.1267 pg/l	< 0.384 pg/l	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Dioxin, hexa		0.38 pg/l	1.91 EMPC pg/l	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Dioxin, hexa		0.38 pg/l	0.710 EMPC pg/l	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Dioxin, hepta		7.6 pg/l	139 pg/l	--	--	--	--	--	--	--	--
Dioxin octa		380 pg/l	2670 pg/l	--	--	--	--	--	--	--	--
2,3,7,8-Dibenzofuran, tetra		0.0475 pg/l	< 0.500 pg/l	--	--	--	--	--	--	--	--
1,2,3,7,8-Dibenzofuran, penta		0.38 pg/l	< 0.534 pg/l	--	--	--	--	--	--	--	--
2,3,4,7,8-Dibenzofuran, penta		0.00475 pg/l	< 0.515 pg/l	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Dibenzofuran, hexa		0.475 pg/l	< 0.841 pg/l	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Dibenzofuran, hexa		0.19 pg/l	< 0.762 pg/l	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Dibenzofuran, hexa		0.0633 pg/l	< 1.03 pg/l	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Dibenzofuran, hexa		0.0543 pg/l	< 0.897 pg/l	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Dibenzofuran, hepta		38 pg/l	23.7 j pg/l	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Dibenzofuran, hepta		0.95 pg/l	< 0.665 pg/l	--	--	--	--	--	--	--	--
Dibenzofuran octa		190 pg/l	238 pg/l	--	--	--	--	--	--	--	--

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
< - Not detected at specified value.
ND - All parameters in this calculated value were not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
EMPC - Estimated maximum possible concentration.

Table 20
Groundwater Quality Data - Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 21
Groundwater Quality Data - Base of Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

			Sys Loc Code	W2228	W2233	W2233	W2233	W2233	W2234	W2236		W2236
			Sample Date	5/7/2011	3/30/2011	5/7/2011	8/30/2011	10/26/2011	5/6/2011	3/31/2011		5/6/2011
			Sample Type Code	N	N	N	N	N	N	N	FD	N
Chemical Name	Drinking Water Criteria	Intervention Limit										
Exceedance Key	**Bold**	Underline										
SVOCs												
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0046 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Chrysene			< 0.0034 ug/l	0.0037 j ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l	0.0029 j ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l	0.0026 j ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	0.0038 a ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	0.00059 a ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	0.0041 j ug/l
Acenaphthene	400 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Acenaphthylene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l	< 0.0036 ug/l	0.0077 j ug/l	0.0049 j ug/l	0.0048 j ug/l	0.0060 j ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l	0.0049 j ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l		< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l
Naphthalene	300 ug/l		0.030 ug/l	< 0.0089 ug/l	0.019 j ug/l	0.012 j ug/l	< 0.0084 ug/l	0.012 j ug/l	< 0.0050 ug/l	< 0.0031 ug/l	0.028 ug/l
Phenanthrene			< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l
Pentachlorophenol	**1 ug/l**	5.5 ug/l	0.30 j ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	0.12 j ug/l	< 0.070 ug/l	< 0.070 ug/l	0.080 j ug/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 21
Groundwater Quality Data - Base of Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

			Sys Loc Code	W2236	W2236		W2237R	W2238	W2239
			Sample Date	8/31/2011	10/27/2011		5/8/2011	5/8/2011	5/3/2011
			Sample Type Code	N	N	FD	N	N	N
Chemical Name	Drinking Water Criteria	Intervention Limit							
Exceedance Key	**Bold**	Underline							
SVOCs									
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	0.012 j ug/l	< 0.0026 ug/l	
Chrysene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	0.0057 j ug/l	< 0.0034 ug/l	
Benzo(b)fluoranthene			< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	
Benzo(k)fluoranthene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	0.0045 a ug/l	< 0.0034 ug/l	
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l	0.0013 a ug/l	ND ug/l	
2-Methylnaphthalene			< 0.0023 ug/l	< 0.0023 ug/l	0.011 j ug/l	< 0.0023 ug/l	31 ug/l	0.0027 j ug/l	
Acenaphthene	400 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0086 ug/l	< 0.0044 ug/l	26 ug/l	< 0.0044 ug/l	
Acenaphthylene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	0.20 ug/l	< 0.0034 ug/l	
Anthracene	2000 ug/l	0.035 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	0.88 ug/l	< 0.0036 ug/l	
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	
Fluoranthene	300 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	1.3 ug/l	< 0.0044 ug/l	
Fluorene	300 ug/l		< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	15 ug/l	< 0.0038 ug/l	
Naphthalene	300 ug/l		0.0097 j ug/l	< 0.0095 ug/l	0.070 ug/l	0.022 ug/l	270 ug/l	0.030 ug/l	
Phenanthrene			< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	12 ug/l	< 0.0050 ug/l	
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	0.54 ug/l	< 0.0035 ug/l	
Pentachlorophenol	**1 ug/l**	5.5 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.070 ug/l	0.16 j ug/l	**3.6 ug/l**	< 0.070 ug/l	

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimat
ND - Not detected.
j - Reported value is less than the stated laboratory quantitation limit an

Table 21
Groundwater Quality Data - Base of Surficial Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 22
Groundwater Quality Data - Lower Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2335	W2336	W2336	W2336	W2336		W2339
		Sample Date	5/7/2011	3/31/2011	5/6/2011	8/31/2011	10/27/2011		5/4/2011
		Sample Type Code	N	N	N	N	N	FD	N
Chemical Name	Drinking Water Criteria	Intervention Limit							
Exceedance Key	No Exceed	No Exceed							
SVOCs									
Benzo(a)anthracene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Chrysene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l	ND ug/l
2-Methylnaphthalene			0.0038 j ug/l	< 0.0023 ug/l	0.0063 j ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l
Acenaphthene	400 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Acenaphthylene			< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l	< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l
Fluorene	300 ug/l		< 0.0038 ug/l	< 0.0038 ug/l	0.0038 j ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l
Naphthalene	300 ug/l		0.022 ug/l	< 0.015 ug/l	0.059 ug/l	0.031 ug/l	< 0.040 ug/l	< 0.053 ug/l	0.011 j ug/l
Phenanthrene			0.0069 j ug/l	< 0.0050 ug/l	0.0070 j ug/l	0.0054 j ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l
Pyrene	200 ug/l		< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l	< 0.0035 ug/l
Pentachlorophenol	1 ug/l	5.5 ug/l	0.12 j ug/l	0.15 j ug/l	0.19 j ug/l	0.13 j ug/l	0.13 j ug/l	0.13 j ug/l	< 0.070 ug/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 22
Groundwater Quality Data - Lower Aquifer
OU3 - City Dump Area
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Top of Surficial Aquifer

	W2106			W2127			W2128			W2129			W2134			W2135		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1987	---	---	---	0.0011 U	0.0038	6 U	5.9 U	6 U	3400	0.0028 U	0.012	9.1	5.9 U	6 U	11000	0.0011 U	0.017	6 U
1988	---	---	---	0.0013	0.0074	6 U	5.9 U	6 U	2400	0.0011 U	0.0045	6 U	5.9 U	6 U	4600	0.0023 U	0.009	6 U
1989	---	---	---	0.0011 U	0.073	6 U	490 U	1200	1200	9.9 U	10 U	10 U	0.0045 U	0.013	74	0.0011 U	0.0036	6 U
1990	---	---	---	0.0011 U	0.0019	6 U	9.9 U	10 U	190	0.0011 U	0.0028	6 U	9.9 U	10 U	10 U	0.0011 U	0.0021	6 U
1991	---	---	---	0.012 U	0.13	6 U	9.9 U	10 U	99	0.003 U	0.0047	6 U	9.9 U	10 U	10 U	0.0059 U	0.008 U	6 U
1992	---	---	---	0.003 U	0.004 U	6 U	9.9 U	10 U	10 U	0.003 U	0.005	6 U	9.9 U	10 U	10 U	0.003 U	0.0048	6 U
1993	---	---	---	0.003 U	0.00882	6 U	0.17 U	1.06	130	0.003 U	0.0146	6 U	0.0037 U	0.0199	6 U	0.0035	0.00847	6 U
1994	---	---	---	0.03 U	0.03 U	3 U	0.12 U	0.12 U	38	0.003 U	0.004	3 U	0.059 U	0.06 U	3 U	0.0591 U	0.06 U	3 U
1995	---	---	---	0.003 U	0.003	3 U	0.59 U	13	120	0.003 U	0.004	3 U	0.003 U	0.004	3 U	0.003 U	0.003 U	3 U
1996	---	---	---	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U	---	---	---	9.9 U	10 U	50 U
1997	---	---	---	9.9 U	10 U	50 U	9.9 U	96	79	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U
1998	---	---	---	0.099 U	0.1 U	5 U	---	---	---	0.099 U	0.1 U	5 U	---	---	---	0.099 U	0.1 U	5 U
1999	---	---	---	0.02 U	0.02 U	3 U	0.02 U	23	3.7	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	---
2000	---	---	---	0.02 U	0.02 U	3 U	0.02 U	23	4	0.02 U	0.02 U	3 U	---	---	---	0.02 U	0.02 U	3 U
2001	140 U	1500	2,600 J	0.02 U	0.02 U	0.5 U	0.02 U	49	48	0.02 U	0.02 U	1.5	0.019 U	0.019 U	0.5 U	0.019 U	0.019 U	0.5 U
2002	---	---	---	0.02 U	0.02 U	2.9 U	0.02 U	43	2.9 U	0.02 U	0.034	0.5 U	---	---	---	0.021 U	0.046	2.2 U
2003	---	---	---	0.02 U	0.02 U	0.5 U	0.02 U	25	25	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U
2004	---	---	---	0.02 U	0.02 U	0.96 U	0.02 U	1.8	5.5	0.02 U	0.02 U	0.5 U	---	---	---	0.02 U	0.02 U	0.96 U
2005	---	---	---	0.02 U	0.02 U	0.5 U	0.02 U	6.1	6.4	0.02 U	0.02 U	0.5 U	0.021 U	0.021 U	0.5 U	0.021 U	0.021 U	0.5 U
2006	0.2 U	2,600	56,000	0.004 U	0.012 U	0.13 U	0.004 U	13	24	0.0041 U	0.0074 J	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.017 U	0.13 U
2007	0.68 U	0.98 J	22,000	0.004 U	0.0069 U	0.13 U	0.004 U	0.014 U	5.1	0.0042 U	0.0068 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.0079 J	0.13 U
2008	0.68 U	120 *	16,000	0.0034 U	0.040	0.080 U	0.0034 U	1.3	5.9	0.0035 a	0.030	0.080 U	0.0034 U	0.0094 U	0.080 U	0.0034 U	0.022 U	0.080 U
2009	0.68 U	11	11,000	0.0035 U	0.0061 U	0.16 U	0.0035 U	4.9	5.6	0.0034 U	0.011 U	0.16 U	---	---	---	0.0035 U	0.0049 U	0.16 U
2010	0.173 U	730 *	14,000	0.0034 U	0.043	0.16 U	0.0034 U	74	32	0.0034 U	0.027	0.16 U	0.0034 U	0.084	0.16 U	0.0034 U	0.034	0.16 U
2011	0.68 U	0.47 U	7,800	0.0034 U	0.023	0.070 U	0.0034 U	4.9	1.9	0.0034 U	0.025	0.070 U	---	---	---	0.68 U	0.37 U	2.5 U

--- No sample collected or analyzed.

* Estimated value, QA/QC criteria not met.

a Estimated value, calculated using some or all values that are estimates.

J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

U Value is non-detect at the method reporting limit.

Shaded cell indicates concentration above response action level (DWC).

BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.

Naph. - Naphthalene concentration

PCP - Pentachlorophenol concentration

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Top of Surficial Aquifer			
	W2140		
Year	BaP Eq	Naph.	PCP
DWC	0.05	300	1
1987			
1988			
1989			
1990			
1991			
1992			
1993			
1994			
1995			
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009	0.0034 U	210	2700
2010	0.0034 U	41	3000
2011	0.0034 U	5.6	910

--- No sample collected or analyzed.
* Estimated value, QA/QC criteria not met.
a Estimated value, calculated using some or all values that are estimates.
J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Base of Surficial Aquifer																		
	W2228			W2233			W2234			W2236			W2237R			W2238		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1987	---	---	---	---	---	---	0.0011 U	0.022	6 U	---	---	---	---	---	---	---	---	---
1988	---	---	---	---	---	---	0.0023 U	0.056	6 U	---	---	---	---	---	---	---	---	---
1989	---	---	---	---	---	---	0.0013 U	0.11	6 U	---	---	---	---	---	---	---	---	---
1990	---	---	---	---	---	---	0.003 U	0.0045	6 U	---	---	---	---	---	---	---	---	---
1991	---	---	---	---	---	---	9.9 U	10 U	10 U	---	---	---	---	---	---	---	---	---
1992	---	---	---	---	---	---	0.071 U	0.096 U	6 U	---	---	---	---	---	---	---	---	---
1993	---	---	---	---	---	---	0.003 U	0.0271	6 U	---	---	---	---	---	---	---	---	---
1994	---	---	---	---	---	---	0.059 U	0.06 U	3 U	---	---	---	---	---	---	---	---	---
1995	---	---	---	---	---	---	0.003 U	0.004	3 U	---	---	---	---	---	---	---	---	---
1996	---	---	---	---	---	---	9.9 U	10 U	50 U	---	---	---	---	---	---	---	---	---
1997	---	---	---	---	---	---	9.9 U	10 U	50 U	---	---	---	---	---	---	---	---	---
1998	---	---	---	---	---	---	0.099 U	0.1 U	5 U	---	---	---	---	---	---	---	---	---
1999	---	---	---	---	---	---	0.02 U	0.02 U	3 U	---	---	---	---	---	---	---	---	---
2000	---	---	---	---	---	---	0.02 U	0.02 U	3 U	---	---	---	---	---	---	---	---	---
2001	---	---	---	---	---	---	0.019 U	0.0189 U	0.5 U	---	---	---	---	---	---	---	---	---
2002	---	---	---	---	---	---	0.02 U	0.02 U	3 U	---	---	---	---	---	---	---	---	---
2003	---	---	---	---	---	---	0.02 U	0.02 U	0.5 U	---	---	---	---	---	---	---	---	---
2004	---	---	---	---	---	---	0.02 U	0.02 U	0.98 U	---	---	---	---	---	---	---	---	---
2005	---	---	---	---	---	---	0.021 U	0.021 U	0.5 U	---	---	---	---	---	---	---	---	---
2006	---	---	---	0.004 U	0.0071 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.011 U	0.13 U	---	---	---	---	---	---
2007	---	---	---	0.004 U	0.0094 J	0.13 U	0.0041 U	0.0066 U	0.13 U	0.0034 U	0.0069 U	0.08 U	---	---	---	---	---	---
2008	0.75 U	0.37 U	2.5 U	0.0034 U	0.032 U	0.080 U	0.0036 a	0.015 U	0.080 U	0.0045 a	0.031 U	0.080 U	---	---	---	0.75 U	99	3.4 J
2009	0.0034 U	0.021 U	0.36 J	0.0058 a	0.072 h	0.16 U	0.0035 U	0.011 U	0.16 U	0.0034 U	0.011 J	0.16 U	0.0037 a	0.076 U	0.34 J	0.0037 U	180	6.2
2010	0.0034 U	0.043 U	0.36 J	0.0037 U	0.098	0.16 U	0.0066 a	0.24	6.5	0.0035 U	0.045	0.070 U	0.0034 U	0.064 U	0.070 U	0.0038 a	160 *	6.3
2011	0.0034 U	0.030	0.30 J	0.0034 U	0.019 J	0.070 U	0.0034 U	0.012 J	0.12 J	0.0034 U	0.028	0.080 J	0.0034 U	0.022	0.16 J	0.0045 a	270	3.6

--- No sample collected or analyzed.

* Estimated value, QA/QC criteria not met.

a Estimated value, calculated using some or all values that are estimates.

h EPA recommended sample preservation, extraction or analysis holding time was exceeded.

J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

U Value is non-detect at the method reporting limit.

Shaded cell indicates concentration above response action level (DWC).

BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.

Naph. - Naphthalene concentration

PCP - Pentachlorophenol concentration

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Base of Surficial Aquifer			
	W2239		
Year	BaP Eq	Naph.	PCP
DWC	0.05	300	1
1987	---	---	---
1988	---	---	---
1989	---	---	---
1990	---	---	---
1991	---	---	---
1992	---	---	---
1993	---	---	---
1994	---	---	---
1995	---	---	---
1996	---	---	---
1997	---	---	---
1998	---	---	---
1999	---	---	---
2000	---	---	---
2001	---	---	---
2002	---	---	---
2003	---	---	---
2004	---	---	---
2005	---	---	---
2006	---	---	---
2007	---	---	---
2008	---	---	---
2009	0.0034 U	0.035 U	0.16 U
2010	0.0034 U	0.055	0.16 U
2011	0.0034 U	0.030	0.070 U

--- No sample collected or analyzed.
* Estimated value, QA/QC criteria not met.
a Estimated value, calculated using some or all values that are estimates.
h EPA recommended sample preservation, extraction or analysis holding time was exceeded.
J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Lower Aquifer

	W2301			W2325			W2326			W2329			W2333			W2335		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
1987	0.0011 U	0.012	6 U	0.0011 U	0.011	6 U	0.0011 U	0.013	6 U	---	---	---	0.0011 U	0.011	6 U	0.0011 U	0.0041	6 U
1988	0.0023 U	0.0098	6 U	0.0023 U	0.007	6 U	0.0023 U	0.0071	6 U	---	---	---	0.0011 U	0.0028	6 U	0.0023 U	0.0058	6 U
1989	0.0011 U	0.04	6 U	0.0011 U	0.021	6 U	0.0011 U	0.017	6 U	---	---	---	0.5 U	0.0067	6 U	0.0011 U	0.011	6 U
1990	0.0011 U	0.0082	6 U	0.011 U	0.0099	6 U	9.9 U	10 U	10 U	---	---	---	9.9 U	10 U	10 U	0.0011 U	0.0035	6 U
1991	---	---	---	0.0033 U	0.0094	6 U	9.9 U	10 U	10 U	---	---	---	9.9 U	10 U	10 U	0.003 U	0.0082	6 U
1992	0.003 U	0.0062	6 U	0.003 U	0.009	6 U	9.9 U	10	10 U	---	---	---	9.9 U	10 U	10 U	0.003 U	0.0089	6 U
1993	0.003 U	0.0135	6 U	0.0034	0.01	6 U	0.0089 U	0.02	6 U	---	---	---	0.003 U	0.0123	6U	0.0031	0.0141	6 U
1994	9.9 U	10 U	5 U	0.0059 U	0.292	3 U	0.059 U	0.06 U	3 U	0.0059 U	0.006 U	3 U	0.15 U	0.15 U	3 U	0.03 U	0.03 U	3 U
1995	0.003 U	0.01	3 U	0.003 U	0.004	3 U	0.003 U	0.014	3 U	0.003 U	0.004	3 U	0.003 U	0.004	3 U	0.003 U	0.005	3 U
1996	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9.9 U	10 U	50 U
1997	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U	9.9 U	10 U	50 U
1998	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.099 U	0.1 U	5 U
1999	0.02 U	0.03	3 U	0.02 U	0.02 U	3 U	0.02 U	0.07	3 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U	3 U	0.02 U	0.04	3 U
2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	3 U
2001	0.023 U	0.058	0.5 U	0.019 U	0.019 U	0.5 U	00.022 U	0.068	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.019 U	0.5 U	0.022 U	0.022 U	0.5 U
2002	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	2.9 U
2003	0.02 U	0.13	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.067	0.5 U	0.02 U	0.02 U	0.5 U	0.02 U	0.02 U	0.5 U	0.2 U	0.06	0.5 U
2004	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.02 U	0.058	0.96 U
2005	0.02 U	0.12	0.5 U	0.021 U	0.021 U	0.5 U	0.021 U	0.25	0.5 U	0.021 U	0.021 U	0.5 U	0.022 U	0.022 U	0.5 U	0.022 U	0.022 U	0.5 U
2006	0.013	0.0065 U	0.2 J	0.004 U	0.015 U	0.13 U	0.004 U	0.011 U	0.13 U	0.004 U	0.004 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.044 U	0.13U
2007	0.004 U	0.0099 J	0.13 U	0.004 U	0.0077 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.0042 U	0.014 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.02 J	0.13 U
2008	0.0034 U	0.035	0.080 U	0.0034 U	0.020	0.080 U	0.0034 U	0.022	0.080 U	0.0034 U	0.015 J	0.080 U	0.0034 U	0.017 U	0.080 U	0.0034 U	0.023 U	0.080 U
2009	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0035 U	0.020 U	0.16 U
2010	0.0034 U	0.52	0.16 U	0.0034 U	0.060	0.16 U	0.0034 U	0.037	0.16 U	0.0034 U	0.0055 J	0.16 U	0.046	0.079	0.16 U	0.0034 U	0.10	0.16 U
2011	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0034 U	0.022	0.12 J

--- No sample collected or analyzed.
* Estimated value, QA/QC criteria not met.
a Estimated value, calculated using some or all values that are estimates.
h EPA recommended sample preservation, extraction or analysis holding time was exceeded.
J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration

Table 23
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
OU3 - City Dump Pit Site
City Dump Pit Site
(concentrations in ug/L)

Lower Aquifer						
	W2336			W2339		
Year	BaP Eq	Naph.	PCP	BaP Eq	Naph.	PCP
DWC	0.05	300	1	0.05	300	1
1987	---	---	---	---	---	---
1988	---	---	---	---	---	---
1989	---	---	---	---	---	---
1990	---	---	---	---	---	---
1991	---	---	---	---	---	---
1992	---	---	---	---	---	---
1993	---	---	---	---	---	---
1994	---	---	---	---	---	---
1995	---	---	---	---	---	---
1996	---	---	---	---	---	---
1997	---	---	---	---	---	---
1998	---	---	---	---	---	---
1999	---	---	---	---	---	---
2000	---	---	---	---	---	---
2001	---	---	---	---	---	---
2002	---	---	---	---	---	---
2003	---	---	---	---	---	---
2004	---	---	---	---	---	---
2005	---	---	---	---	---	---
2006	0.004 U	0.026 U	0.14 J	---	---	---
2007	0.0042 a	0.17	0.13 U	---	---	---
2008	0.0035 U	0.37 U	0.080 U	---	---	---
2009	0.0036 a	0.52	0.24 J	0.0035 U	0.021 U	0.16 U
2010	0.0034 U	0.088	0.16 U	0.0034 U	0.053	0.16 U
2011	0.0034 U	0.059	0.19 J	0.0034 U	0.011 J	0.070 U

--- No sample collected or analyzed.
* Estimated value, QA/QC criteria not met.
a Estimated value, calculated using some or all values that are estimates.
h EPA recommended sample preservation, extraction or analysis holding time was exceeded.
J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
U Value is non-detect at the method reporting limit.
Shaded cell indicates concentration above response action level (DWC).
BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.
Naph. - Naphthalene concentration
PCP - Pentachlorophenol concentration

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2128	W2128	W2128	W2140	W2228	W2233	W2233	W2233	W2233
		Sample Date	5/8/2011	8/30/2011	10/26/2011	5/8/2011	5/7/2011	3/30/2011	5/7/2011	8/30/2011	10/26/2011
		Sample Type Code	N	N	N	N	N	N	N	N	N
Chemical Name	Total or Dissolved	Intervention Limits									
Effective Date											
Exceedance Key		**Bold**									
Total Petroleum Hydrocarbons											
Diesel Range Organics-silica gel cleanup	NA	**200 ug/l**	28 j ug/l	37 j ug/l	25 j ug/l	**800 ug/l**	35 j ug/l	< 15 ug/l	26 j ug/l	36 j ug/l	< 16 ug/l
Metals											
Arsenic	Total		--	--	--	1.0 ug/l	0.8 ug/l	--	--	--	--
Chromium	Total		--	--	--	2.1 ug/l	< 0.2 ug/l	--	--	--	--
Copper	Total		--	--	--	2.2 ug/l	0.3 ug/l	--	--	--	--
VOCs											
Benzene	NA	114 ug/l	< 0.054 ug/l	0.060 j ug/l	< 0.054 ug/l	4.2 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l
Ethyl benzene	NA	68 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	5.4 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l
Toluene	NA	253 ug/l	< 0.060 ug/l	0.060 j ug/l	< 0.052 ug/l	1.6 ug/l	< 0.052 ug/l	0.090 j ug/l	< 0.052 ug/l	0.060 j ug/l	< 0.052 ug/l
Xylene m & p	NA	166 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	3.6 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l
Xylene, o-	NA	166 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	3.1 ug/l	0.14 j ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l
SVOCs											
1,6-Dinitropyrene	NA		< 6.5 ng/l	--	--	--	--	--	--	--	--
1,8-Dinitropyrene	NA		< 7.9 ng/l	--	--	--	--	--	--	--	--
1-Nitropyrene	NA		< 2.4 ng/l	--	--	--	--	--	--	--	--
2-Nitrofluorene	NA		< 4.7 ng/l	--	--	--	--	--	--	--	--
3-Methylcholanthrene	NA		< 5.5 ng/l	--	--	--	--	--	--	--	--
5-Methylchrysene	NA		< 0.82 ng/l	--	--	--	--	--	--	--	--
5-Nitroacenapthene	NA		< 5.8 ng/l	--	--	--	--	--	--	--	--
6-Nitrochrysene	NA		< 0.98 ng/l	--	--	--	--	--	--	--	--
7,12-Dimethylbenz(a)anthracene	NA		< 1.1 ng/l	--	--	--	--	--	--	--	--
7h-Dibenzo(c,g)carbazole	NA		< 0.99 ng/l	--	--	--	--	--	--	--	--
Benzo(b&j)fluoranthene	NA		< 1.2 ng/l	--	--	--	--	--	--	--	--
Dibenz(a,h)acridine	NA		< 1.5 ng/l	--	--	--	--	--	--	--	--
Dibenz(a,j)acridine	NA		< 0.83 ng/l	--	--	--	--	--	--	--	--
Dibenzo(a,e)pyrene	NA		< 1.7 ng/l	--	--	--	--	--	--	--	--
Dibenzo(a,l)pyrene	NA		< 1.3 ng/l	--	--	--	--	--	--	--	--
Dibenzo[a,h]pyrene	NA		< 1.0 ng/l	--	--	--	--	--	--	--	--
Dibenzo[a,i]pyrene	NA		< 1.2 ng/l	--	--	--	--	--	--	--	--

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2128	W2128	W2128	W2140	W2228	W2233	W2233	W2233	W2233
		Sample Date	5/8/2011	8/30/2011	10/26/2011	5/8/2011	5/7/2011	3/30/2011	5/7/2011	8/30/2011	10/26/2011
		Sample Type Code	N	N	N	N	N	N	N	N	N
Chemical Name	Total or Dissolved	Intervention Limits									
Effective Date											
Exceedance Key		**Bold**									
Chlorinated Dioxins / Furans											
2,3,7,8-Dioxin, tetra	NA	0.0038 pg/l	< 0.494 pg/l	< 0.308 pg/l	< 1.72 pg/l	< 1.03 pg/l	< 1.30 pg/l	< 0.310 pg/l	< 1.57 pg/l	< 0.411 pg/l	< 2.76 pg/l
1,2,3,7,8-Dioxin penta	NA	0.0084 pg/l	< 0.456 pg/l	< 0.243 pg/l	< 1.47 pg/l	< 0.642 pg/l	< 1.13 pg/l	< 0.280 pg/l	< 1.59 pg/l	< 0.298 pg/l	< 2.07 pg/l
1,2,3,4,7,8-Dioxin, hexa	NA	0.1267 pg/l	< 0.525 pg/l	< 0.266 pg/l	< 1.39 pg/l	< 0.542 pg/l	< 0.602 pg/l	< 0.272 pg/l	< 0.794 pg/l	< 0.322 pg/l	< 2.02 pg/l
1,2,3,6,7,8-Dioxin, hexa	NA	0.38 pg/l	< 0.496 pg/l	< 0.211 pg/l	< 1.22 pg/l	< 0.530 pg/l	< 0.590 pg/l	< 0.256 pg/l	< 0.776 pg/l	< 0.256 pg/l	< 1.78 pg/l
1,2,3,7,8,9-Dioxin, hexa	NA	0.38 pg/l	< 0.494 pg/l	< 0.221 pg/l	< 1.24 pg/l	< 0.511 pg/l	< 0.568 pg/l	< 0.256 pg/l	< 0.749 pg/l	< 0.269 pg/l	< 1.81 pg/l
1,2,3,4,6,7,8-Dioxin, hepta	NA	7.6 pg/l	1.73 EMPC pg/l	< 1.20 pg/l	< 3.61 pg/l	< 0.675 pg/l	< 0.963 pg/l	< 0.356 pg/l	1.31 j pg/l	< 0.272 pg/l	< 0.945 pg/l
Dioxin octa	NA	380 pg/l	24.0 j pg/l	< 10.2 pg/l	< 39.2 pg/l	< 13.7 pg/l	< 3.33 pg/l	< 3.03 pg/l	< 5.93 pg/l	< 6.53 pg/l	< 6.91 pg/l
2,3,7,8-Dibenzofuran, tetra	NA	0.0475 pg/l	< 0.474 pg/l	< 0.254 pg/l	< 1.29 pg/l	< 1.23 pg/l	< 1.41 pg/l	< 0.298 pg/l	< 1.76 pg/l	< 0.283 pg/l	< 2.09 pg/l
1,2,3,7,8-Dibenzofuran, penta	NA	0.38 pg/l	< 0.430 pg/l	< 0.183 pg/l	< 0.938 pg/l	< 0.571 pg/l	< 0.928 pg/l	< 0.304 pg/l	< 1.24 pg/l	< 0.209 pg/l	< 1.66 pg/l
2,3,4,7,8-Dibenzofuran, penta	NA	0.00475 pg/l	< 0.415 pg/l	< 0.185 pg/l	< 0.997 pg/l	< 0.560 pg/l	< 0.911 pg/l	< 0.294 pg/l	< 1.21 pg/l	< 0.210 pg/l	< 1.77 pg/l
1,2,3,4,7,8-Dibenzofuran, hexa	NA	**0.475 pg/l**	< 0.426 pg/l	< 0.176 pg/l	< 0.888 pg/l	< 0.575 pg/l	< 0.608 pg/l	< 0.248 pg/l	< 2.25 pg/l	< 0.186 pg/l	< 1.28 pg/l
1,2,3,6,7,8-Dibenzofuran, hexa	NA	0.19 pg/l	< 0.386 pg/l	< 0.148 pg/l	< 0.791 pg/l	< 0.559 pg/l	< 0.592 pg/l	< 0.225 pg/l	< 1.15 pg/l	< 0.157 pg/l	< 1.14 pg/l
1,2,3,7,8,9-Dibenzofuran, hexa	NA	0.0633 pg/l	< 0.521 pg/l	< 0.194 pg/l	< 1.08 pg/l	< 0.674 pg/l	< 0.713 pg/l	< 0.302 pg/l	< 1.38 pg/l	< 0.205 pg/l	< 1.54 pg/l
2,3,4,6,7,8-Dibenzofuran, hexa	NA	0.0543 pg/l	< 0.455 pg/l	< 0.173 pg/l	< 0.906 pg/l	< 0.612 pg/l	< 0.647 pg/l	< 0.265 pg/l	< 1.25 pg/l	< 0.183 pg/l	< 1.30 pg/l
1,2,3,4,6,7,8-Dibenzofuran, hepta	NA	38 pg/l	< 0.688 pg/l	< 0.225 pg/l	< 2.37 pg/l	< 0.575 pg/l	< 0.658 pg/l	< 0.262 pg/l	< 6.12 pg/l	< 0.309 pg/l	< 0.784 pg/l
1,2,3,4,7,8,9-Dibenzofuran, hepta	NA	0.95 pg/l	< 0.963 pg/l	< 0.285 pg/l	< 1.19 pg/l	< 0.718 pg/l	< 0.820 pg/l	< 0.368 pg/l	< 0.776 pg/l	< 0.391 pg/l	< 1.06 pg/l
Dibenzofuran octa	NA	190 pg/l	2.62 j pg/l	< 1.00 pg/l	< 5.78 pg/l	< 1.23 pg/l	< 1.43 pg/l	< 0.457 pg/l	17.8 j pg/l	< 0.492 pg/l	< 1.59 pg/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
NA - Not applicable
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
EMPC - Estimated maximum possible concentration.

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2236		W2236	W2236	W2236		W2237R		W2238	W2239
		Sample Date	3/31/2011		5/6/2011	8/31/2011	10/27/2011		5/8/2011		5/8/2011	5/3/2011
		Sample Type Code	N	FD	N	N	N	FD	N	FD	N	N
Chemical Name	Total or Dissolved	Intervention Limits										
Effective Date												
Exceedance Key		**Bold**										
Total Petroleum Hydrocarbons												
Diesel Range Organics-silica gel cleanup	NA	**200 ug/l**	< 15 ug/l	< 15 ug/l	22 j ug/l	16 j ug/l	< 16 ug/l	< 16 ug/l	110 ug/l	--	**430 ug/l**	83 ug/l
Metals												
Arsenic	Total		--	--	--	--	--	--	1.1 ug/l	1.1 ug/l	5.5 ug/l	1.44 ug/l
Chromium	Total		--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.32 ug/l
Copper	Total		--	--	--	--	--	--	0.4 ug/l	0.4 ug/l	0.3 ug/l	0.60 ug/l
VOCs												
Benzene	NA	114 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	--	< 0.054 ug/l	< 0.054 ug/l
Ethyl benzene	NA	68 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	--	0.17 j ug/l	< 0.050 ug/l
Toluene	NA	253 ug/l	< 0.052 ug/l	< 0.052 ug/l	< 0.052 ug/l	< 0.052 ug/l	< 0.052 ug/l	3.3 ug/l	< 0.052 ug/l	--	< 0.090 ug/l	0.090 j ug/l
Xylene m & p	NA	166 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	0.13 j ug/l	< 0.091 ug/l	--	0.35 j ug/l	< 0.091 ug/l
Xylene, o-	NA	166 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	--	0.37 j ug/l	< 0.074 ug/l
SVOCs												
1,6-Dinitropyrene	NA		--	--	--	--	--	--	--	--	--	--
1,8-Dinitropyrene	NA		--	--	--	--	--	--	--	--	--	--
1-Nitropyrene	NA		--	--	--	--	--	--	--	--	--	--
2-Nitrofluorene	NA		--	--	--	--	--	--	--	--	--	--
3-Methylcholanthrene	NA		--	--	--	--	--	--	--	--	--	--
5-Methylchrysene	NA		--	--	--	--	--	--	--	--	--	--
5-Nitroacenapthene	NA		--	--	--	--	--	--	--	--	--	--
6-Nitrochrysene	NA		--	--	--	--	--	--	--	--	--	--
7,12-Dimethylbenz(a)anthracene	NA		--	--	--	--	--	--	--	--	--	--
7h-Dibenzo(c,g)carbazole	NA		--	--	--	--	--	--	--	--	--	--
Benzo(b&j)fluoranthene	NA		--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)acridine	NA		--	--	--	--	--	--	--	--	--	--
Dibenz(a,j)acridine	NA		--	--	--	--	--	--	--	--	--	--
Dibenzo(a,e)pyrene	NA		--	--	--	--	--	--	--	--	--	--
Dibenzo(a,l)pyrene	NA		--	--	--	--	--	--	--	--	--	--
Dibenzo[a,h]pyrene	NA		--	--	--	--	--	--	--	--	--	--
Dibenzo[a,i]pyrene	NA		--	--	--	--	--	--	--	--	--	--

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2236		W2236	W2236	W2236		W2237R		W2238	W2239
		Sample Date	3/31/2011		5/6/2011	8/31/2011	10/27/2011		5/8/2011		5/8/2011	5/3/2011
		Sample Type Code	N	FD	N	N	N	FD	N	FD	N	N
Chemical Name	Total or Dissolved	Intervention Limits										
Effective Date												
Exceedance Key		**Bold**										
Chlorinated Dioxins / Furans												
2,3,7,8-Dioxin, tetra	NA	0.0038 pg/l	< 0.336 pg/l	< 0.395 pg/l	< 1.27 pg/l	< 0.339 pg/l	< 1.30 pg/l	< 0.680 pg/l	< 0.377 pg/l	--	< 0.369 pg/l	< 1.67 pg/l
1,2,3,7,8-Dioxin penta	NA	0.0084 pg/l	< 0.286 pg/l	< 0.414 pg/l	< 1.19 pg/l	< 0.250 pg/l	< 1.81 pg/l	< 0.473 pg/l	< 0.405 pg/l	--	< 0.337 pg/l	< 1.58 pg/l
1,2,3,4,7,8-Dioxin, hexa	NA	0.1267 pg/l	< 0.435 pg/l	< 0.442 pg/l	< 1.01 pg/l	< 0.269 pg/l	< 1.38 pg/l	< 0.833 pg/l	< 0.322 pg/l	--	< 0.325 pg/l	< 0.742 pg/l
1,2,3,6,7,8-Dioxin, hexa	NA	0.38 pg/l	< 0.411 pg/l	< 0.417 pg/l	< 0.988 pg/l	< 0.214 pg/l	< 1.22 pg/l	< 0.732 pg/l	< 0.305 pg/l	--	< 0.307 pg/l	< 0.640 pg/l
1,2,3,7,8,9-Dioxin, hexa	NA	0.38 pg/l	< 0.410 pg/l	< 0.416 pg/l	< 0.952 pg/l	< 0.224 pg/l	< 1.24 pg/l	< 0.743 pg/l	< 0.305 pg/l	--	< 0.306 pg/l	< 0.652 pg/l
1,2,3,4,6,7,8-Dioxin, hepta	NA	7.6 pg/l	< 0.700 pg/l	< 0.370 pg/l	< 0.872 pg/l	< 0.212 pg/l	< 1.60 pg/l	< 1.22 pg/l	< 0.367 pg/l	--	< 0.378 pg/l	< 1.04 pg/l
Dioxin octa	NA	380 pg/l	< 2.56 pg/l	< 2.12 pg/l	< 7.76 pg/l	< 1.66 pg/l	< 7.54 pg/l	< 3.99 pg/l	< 2.86 pg/l	--	< 0.462 pg/l	< 2.80 pg/l
2,3,7,8-Dibenzofuran, tetra	NA	0.0475 pg/l	< 0.326 pg/l	< 0.366 pg/l	< 1.36 pg/l	< 0.392 pg/l	< 1.27 pg/l	< 0.522 pg/l	< 0.284 pg/l	--	< 0.332 pg/l	< 1.43 pg/l
1,2,3,7,8-Dibenzofuran, penta	NA	0.38 pg/l	< 0.255 pg/l	< 0.471 pg/l	< 0.894 pg/l	< 0.162 pg/l	< 1.29 pg/l	< 0.352 pg/l	< 0.407 pg/l	--	< 0.441 pg/l	< 1.18 pg/l
2,3,4,7,8-Dibenzofuran, penta	NA	0.00475 pg/l	< 0.247 pg/l	< 0.453 pg/l	< 0.878 pg/l	< 0.163 pg/l	< 1.37 pg/l	< 0.375 pg/l	< 0.392 pg/l	--	< 0.425 pg/l	< 1.25 pg/l
1,2,3,4,7,8-Dibenzofuran, hexa	NA	**0.475 pg/l**	< 0.290 pg/l	< 0.324 pg/l	< 1.02 pg/l	< 0.214 pg/l	< 0.683 pg/l	< 0.498 pg/l	< 0.533 pg/l	--	< 0.376 pg/l	**2.60 j pg/l**
1,2,3,6,7,8-Dibenzofuran, hexa	NA	0.19 pg/l	< 0.263 pg/l	< 0.294 pg/l	< 0.990 pg/l	< 0.180 pg/l	< 0.608 pg/l	< 0.443 pg/l	< 0.483 pg/l	--	< 0.340 pg/l	< 0.902 pg/l
1,2,3,7,8,9-Dibenzofuran, hexa	NA	0.0633 pg/l	< 0.353 pg/l	< 0.395 pg/l	< 1.20 pg/l	< 0.236 pg/l	< 0.823 pg/l	< 0.600 pg/l	< 0.651 pg/l	--	< 0.458 pg/l	< 1.25 pg/l
2,3,4,6,7,8-Dibenzofuran, hexa	NA	0.0543 pg/l	< 0.309 pg/l	< 0.346 pg/l	< 1.09 pg/l	< 0.211 pg/l	< 0.697 pg/l	< 0.507 pg/l	< 0.569 pg/l	--	< 0.400 pg/l	< 1.05 pg/l
1,2,3,4,6,7,8-Dibenzofuran, hepta	NA	38 pg/l	< 0.298 pg/l	< 0.325 pg/l	< 0.647 pg/l	< 0.231 pg/l	< 1.04 pg/l	< 0.521 pg/l	< 0.380 pg/l	--	< 0.484 pg/l	< 2.92 pg/l
1,2,3,4,7,8,9-Dibenzofuran, hepta	NA	0.95 pg/l	< 0.417 pg/l	< 0.456 pg/l	< 0.805 pg/l	< 0.293 pg/l	< 1.40 pg/l	< 0.704 pg/l	< 0.533 pg/l	--	< 0.677 pg/l	< 0.902 pg/l
Dibenzofuran octa	NA	190 pg/l	< 0.505 pg/l	< 0.680 pg/l	< 1.84 pg/l	< 0.440 pg/l	< 3.43 pg/l	< 1.62 pg/l	< 0.906 pg/l	--	< 0.793 pg/l	< 6.77 pg/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
NA - Not applicable
j - Reported value is less than the stated laboratory quantitation limit and is conside
EMPC - Estimated maximum possible concentration.

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2336	W2336	W2336	W2336		W2339
		Sample Date	3/31/2011	5/6/2011	8/31/2011	10/27/2011		5/4/2011
		Sample Type Code	N	N	N	N	FD	N
Chemical Name	Total or Dissolved	Intervention Limits						
Effective Date								
Exceedance Key		**Bold**						
Total Petroleum Hydrocarbons								
Diesel Range Organics-silica gel cleanup	NA	**200 ug/l**	16 j ug/l	44 j ug/l	38 j ug/l	18 j ug/l	< 16 ug/l	110 ug/l
Metals								
Arsenic	Total		--	--	--	--	--	0.45 j ug/l
Chromium	Total		--	--	--	--	--	< 0.19 ug/l
Copper	Total		--	--	--	--	--	0.32 ug/l
VOCs								
Benzene	NA	114 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l
Ethyl benzene	NA	68 ug/l	0.060 j ug/l	0.070 j ug/l	0.070 j ug/l	0.050 j ug/l	0.050 j ug/l	< 0.050 ug/l
Toluene	NA	253 ug/l	< 0.052 ug/l	0.090 j ug/l	0.060 j ug/l	< 0.060 ug/l	< 0.052 ug/l	0.060 j ug/l
Xylene m & p	NA	166 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l
Xylene, o-	NA	166 ug/l	0.15 j ug/l	0.15 j ug/l	0.17 j ug/l	0.13 j ug/l	0.13 j ug/l	< 0.074 ug/l
SVOCs								
1,6-Dinitropyrene	NA		--	--	--	--	--	--
1,8-Dinitropyrene	NA		--	--	--	--	--	--
1-Nitropyrene	NA		--	--	--	--	--	--
2-Nitrofluorene	NA		--	--	--	--	--	--
3-Methylcholanthrene	NA		--	--	--	--	--	--
5-Methylchrysene	NA		--	--	--	--	--	--
5-Nitroacenapthene	NA		--	--	--	--	--	--
6-Nitrochrysene	NA		--	--	--	--	--	--
7,12-Dimethylbenz(a)anthracene	NA		--	--	--	--	--	--
7h-Dibenzo(c,g)carbazole	NA		--	--	--	--	--	--
Benzo(b&j)fluoranthene	NA		--	--	--	--	--	--
Dibenz(a,h)acridine	NA		--	--	--	--	--	--
Dibenz(a,j)acridine	NA		--	--	--	--	--	--
Dibenzo(a,e)pyrene	NA		--	--	--	--	--	--
Dibenzo(a,l)pyrene	NA		--	--	--	--	--	--
Dibenzo[a,h]pyrene	NA		--	--	--	--	--	--
Dibenzo[a,i]pyrene	NA		--	--	--	--	--	--

Table 24
Groundwater Quality Data - Comparison to Intervention Limits
OU3 - City Dump Area
St. Regis Paper Company Site

		Sys Loc Code	W2336	W2336	W2336	W2336		W2339
		Sample Date	3/31/2011	5/6/2011	8/31/2011	10/27/2011		5/4/2011
		Sample Type Code	N	N	N	N	FD	N
Chemical Name	Total or Dissolved	Intervention Limits						
Effective Date								
Exceedance Key		**Bold**						
Chlorinated Dioxins / Furans								
2,3,7,8-Dioxin, tetra	NA	0.0038 pg/l	< 0.447 pg/l	< 1.36 pg/l	< 0.234 pg/l	< 1.91 pg/l	< 0.925 pg/l	< 2.18 pg/l
1,2,3,7,8-Dioxin penta	NA	0.0084 pg/l	< 0.301 pg/l	< 1.48 pg/l	< 0.204 pg/l	< 1.01 pg/l	< 0.680 pg/l	< 1.57 pg/l
1,2,3,4,7,8-Dioxin, hexa	NA	0.1267 pg/l	< 0.411 pg/l	< 1.00 pg/l	< 0.235 pg/l	< 1.07 pg/l	< 0.645 pg/l	< 0.861 pg/l
1,2,3,6,7,8-Dioxin, hexa	NA	0.38 pg/l	< 0.389 pg/l	< 0.977 pg/l	< 0.186 pg/l	< 0.939 pg/l	< 0.567 pg/l	< 0.741 pg/l
1,2,3,7,8,9-Dioxin, hexa	NA	0.38 pg/l	< 0.388 pg/l	< 0.943 pg/l	< 0.196 pg/l	< 0.954 pg/l	< 0.575 pg/l	< 0.756 pg/l
1,2,3,4,6,7,8-Dioxin, hepta	NA	7.6 pg/l	< 0.495 pg/l	< 0.915 pg/l	< 0.425 pg/l	< 1.20 pg/l	< 1.09 pg/l	< 0.782 pg/l
Dioxin octa	NA	380 pg/l	< 2.92 pg/l	< 11.8 pg/l	< 3.00 pg/l	< 5.67 pg/l	< 3.64 pg/l	< 2.81 pg/l
2,3,7,8-Dibenzofuran, tetra	NA	0.0475 pg/l	< 0.457 pg/l	< 1.49 pg/l	< 0.201 pg/l	< 1.06 pg/l	< 0.797 pg/l	< 2.00 pg/l
1,2,3,7,8-Dibenzofuran, penta	NA	0.38 pg/l	< 0.258 pg/l	< 1.28 pg/l	< 0.135 pg/l	< 0.750 pg/l	< 0.578 pg/l	< 1.84 pg/l
2,3,4,7,8-Dibenzofuran, penta	NA	0.00475 pg/l	< 0.249 pg/l	< 1.26 pg/l	< 0.136 pg/l	< 0.797 pg/l	< 0.615 pg/l	< 1.94 pg/l
1,2,3,4,7,8-Dibenzofuran, hexa	NA	**0.475 pg/l**	< 0.259 pg/l	< 0.764 pg/l	< 0.0762 pg/l	< 0.697 pg/l	< 0.454 pg/l	< 1.19 pg/l
1,2,3,6,7,8-Dibenzofuran, hexa	NA	0.19 pg/l	< 0.234 pg/l	< 0.743 pg/l	< 0.0639 pg/l	< 0.620 pg/l	< 0.404 pg/l	< 1.06 pg/l
1,2,3,7,8,9-Dibenzofuran, hexa	NA	0.0633 pg/l	< 0.316 pg/l	< 0.896 pg/l	< 0.0839 pg/l	< 0.840 pg/l	< 0.548 pg/l	< 1.46 pg/l
2,3,4,6,7,8-Dibenzofuran, hexa	NA	0.0543 pg/l	< 0.276 pg/l	< 0.814 pg/l	< 0.0753 pg/l	< 0.711 pg/l	< 0.464 pg/l	< 1.23 pg/l
1,2,3,4,6,7,8-Dibenzofuran, hepta	NA	38 pg/l	< 0.323 pg/l	< 0.672 pg/l	< 0.165 pg/l	< 1.02 pg/l	< 0.791 pg/l	< 1.51 pg/l
1,2,3,4,7,8,9-Dibenzofuran, hepta	NA	0.95 pg/l	< 0.452 pg/l	< 0.838 pg/l	< 0.209 pg/l	< 1.38 pg/l	< 1.07 pg/l	< 1.28 pg/l
Dibenzofuran octa	NA	190 pg/l	< 0.382 pg/l	< 1.67 pg/l	< 0.275 pg/l	< 1.91 pg/l	< 1.83 pg/l	< 3.61 pg/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
NA - Not applicable
j - Reported value is less than the stated laboratory quantitation limit and is conside
EMPC - Estimated maximum possible concentration.

Table 25
Water Quality Over Time
Extraction Wells
St. Regis Paper Company Site
(concentrations in ug/L)

	OU1 - Extraction Wells											OU3 - Extraction Wells		
Year	W401 PCP	W402 PCP	W403 PCP	W404 PCP	W405 PCP	W406 PCP	W407 PCP	W408 PCP	W409 PCP	W410 PCP	W411 PCP	W2401 PCP	W2402 PCP	W2403 PCP
1987	2,100	1,600	18,000	5,600	9,400	38	5 U	9,400	15,000	160	690	---	---	---
1988	2,000	1,300	9,300	6,300	4,500	12	5 U	5,000	18,000	280	---	16,000	17,000	6,900
1989	56		1,500	9,000	7,000	5 U	---	5,600	8,900	12,000	---	---		4,500
1990	2,500	1,600	790	---	5,500	---	---	6,200	8,700	80	---	---	1,100	3,000
1991	1,600	1,600	1,200	---	1,500	10 U	---	5,300	6,600	10 U	---	---	720	3,000
1992	1,500	1,100	560	---	840	---	---	3,800	6,200	5 U	---	---	580	3,400
1993	970	810	300	---	6,000	5 U	5 U	4,400	4,800	5 U	---	4,200	450	2,800
1994	2,000	2,200	320	---	6,500	5 U	5 U	3,100	3,700	7	---	3,800	280	1,900
1995	890	1,200	190	---	5,300	5 U	5 U	1,300	2,100	14	---	1,800	220	1,600
1996	---	---	---	---	---	---	---	2,000	---	---	---	---	---	---
1997	1,000	950	560	---	5,300	58	50 U	2,000	5,000	50 U	---	5,700	1,000	2,200
1998	---	---	---	---	---	---	---	1,200	---	---	---	---	---	---
1999	1,200	1,300	640	---	7,000	50 U	50 U	1,800	2,900	50	350	4,400	1,400	3,500
2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2001	1,700	2,100	530	---	7,400	24 U	24 U	1,200	3,600	47	14	3,200	340	3,000
2002	---	---	---	---	---	---	---	440	---	---	---	---	---	---
2003	1,700	250	400	---	7,500	0.5 U	0.5 U	700	1,700	3	12	3,100	0.5 U	1,800
2004	---	---	---	---	---	---	---	450	---	---	---	---	---	---
2005	2,200	950	820	---	9,900	0.5 U	0.5 U	820	1,900	20 U	17	2,900	220	2,100
2006	1,300	88	450	---	7,700	0.13 U	0.13 U	660	2,100	36	31	4,200	370	1,700
2007	1,500	960	450	---	7,200	0.13 U	0.13 U	580	1,800	30	11	4,900	250	2,300
2008	1800 H	1300 H	460 JH	--	11000	2.5 UH	0.080 UH	640 [1]	2,000	110 H	15	4500 JH	110 H	2100 H
2009	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2010	690	110	36	1,300	2300 *	---	0.55 U	---	4800 H	1.7	7.1	4,500	200	1,100
2011	---	---	---	---	---	---	---	---	---	---	---	---	---	---

PCP - Pentachlorophenol concentration
--- No sample collected or analyzed.
U Value is non-detect at the method reporting limit.
* Estimated value, QA/QC criteria not met.
H EPA recommended sample preservation, extraction or analysis holding time was exceeded.
J Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
[1] Concentration from duplicate sample selected.

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Table 26
Water Quality Data - Pentachlorophenol
Groundwater Treatment System
St. Regis Paper Company Site

Location		Influent	Primary Absorber	Secondary Absorber	Effluent
Sample Date	Sample Type Code				
			Ads B	**Ads C**	**Ads A**
1/4/2011	N	1600 ug/l	1300 ug/l	85 ug/l	1.2 ug/l
			Ads C	**Ads A**	**Ads B**
2/9/2011	N	1800 ug/l	240 ug/l	< 0.070 ug/l	< 0.070 ug/l
3/7/2011	N	1700 ug/l	620 ug/l	0.090 j ug/l	< 0.070 ug/l
			Ads C	**Ads A**	**Ads B**
04/05/2011	N	**1800 ug/l**	**1200 ug/l**	**0.42 j ug/l**	< 0.27 ug/l
04/05/2011	FD	--	--	--	< 0.20 ug/l
05/03/2011	N	**1900 ug/l**	**1300 ug/l**	**1.6 ug/l**	**0.072 j ug/l**
06/07/2011	N	**1400 * ug/l**	**970 ug/l**	**4.4 ug/l**	< 0.074 ug/l
			Ads C	**Ads A**	**Ads B**
07/06/2011	N	**1400 ug/l**	**960 ug/l**	**2.5 h ug/l**	**0.089 h ug/l**
08/03/2011	N	**1700 ug/l**	**1400 ug/l**	**22 ug/l**	< 0.13 ug/l
08/03/2011	FD	--	--	--	**0.090 j ug/l**
09/06/2011	N	**1400 ug/l**	**950 ug/l**	**19 ug/l**	< 0.070 ug/l
			Ads A	**Ads B**	**Ads C**
10/04/2011	N	**1500 ug/l**	**170 ug/l**	**0.11 j ug/l**	< 0.070 ug/l
11/02/2011	N	**1600 ug/l**	**1100 ug/l**	**0.087 j ug/l**	< 0.070 ug/l
12/06/2011	N	**1800 ug/l**	**1500 ug/l**	**0.36 j ug/l**	< 0.070 ug/l
12/06/2011	FD	--	--	--	< 0.070 ug/l

N - Sample Type: Normal
FD - Sample Type: Field Duplicate
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
h - EPA recommended sample preservation, extraction or analysis holding time was exceeded.

Table 27
Water Quality Data - Effluent
Groundwater Treatment System
St. Regis Paper Company Site

	Sys Loc Code	ADSA	ADSB	ADSB	ADSB	
	Sample Date	1/4/2011	2/9/2011	3/7/2011	4/5/2011	
	Sample Type Code	N	N	N	N	FD
Chemical Name	Effluent Limitation					
Exceedance Key	**Bold**					
Metals						
Arsenic	53 ug/l	0.3 j ug/l	0.83 ug/l	0.60 ug/l	0.4 j ug/l	--
Chromium	11 CR ug/l	0.36 ug/l	0.10 j ug/l	0.10 j ug/l	< 0.05 ug/l	--
Copper	9.8 HD ug/l	0.97 ug/l	0.50 ug/l	0.50 ug/l	0.74 ug/l	--
SVOCs						
2-Methylnaphthalene		< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	--
Acenaphthene	12 ug/l	0.0071 j ug/l	0.018 j ug/l	0.0087 j ug/l	0.0060 j ug/l	--
Acenaphthylene		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	--
Anthracene	0.029 ug/l	0.0064 j ug/l	0.0044 j ug/l	0.0037 j ug/l	< 0.0036 ug/l	--
Benzo(a)anthracene		0.041 ug/l	0.0071 j ug/l	0.011 j ug/l	0.082 ug/l	--
Benzo(a)pyrene	**0.00051 ug/l**	**0.013 j ug/l**	< 0.0043 ug/l	< 0.0043 ug/l	**0.030 ug/l**	--
Benzo(b)fluoranthene		0.030 ug/l	< 0.0023 ug/l	0.0060 j ug/l	0.062 ug/l	--
Benzo(g,h,i)perylene		0.0043 j ug/l	< 0.0029 ug/l	< 0.0029 ug/l	0.0072 j ug/l	--
Benzo(k)fluoranthene		0.013 j ug/l	< 0.0025 ug/l	< 0.0025 ug/l	0.028 ug/l	--
Chrysene		0.036 ug/l	0.0037 j ug/l	0.0073 j ug/l	0.062 ug/l	--
Dibenz(a,h)anthracene		< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	--
Fluoranthene	20 ug/l	0.10 ug/l	0.038 ug/l	0.034 ug/l	0.25 ug/l	--
Fluorene		< 0.0038 ug/l	0.0088 j ug/l	0.0066 j ug/l	< 0.0038 ug/l	--
Indeno(1,2,3-cd)pyrene		< 0.0026 ug/l	< 0.0026 ug/l	< 0.0026 ug/l	0.0079 j ug/l	--
Naphthalene	81 ug/l	< 0.0030 ug/l	< 0.012 ug/l	0.015 j ug/l	< 0.0030 ug/l	--
Phenanthrene	2.1 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	--
Pyrene		0.086 ug/l	0.025 ug/l	0.020 j ug/l	0.20 ug/l	--
Pentachlorophenol	5.5 ug/l	1.2 ug/l	< 0.070 ug/l	< 0.070 ug/l	< 0.27 ug/l	< 0.20 ug/l
VOCs						
Benzene	114 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	< 0.054 ug/l	--
Ethyl benzene	68 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	< 0.050 ug/l	--
Toluene	253 ug/l	< 0.052 ug/l	< 0.052 ug/l	< 0.052 ug/l	< 0.052 ug/l	--
Xylene m & p	166 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	< 0.091 ug/l	--
Xylene, o-	166 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	< 0.074 ug/l	--
Total Petroleum Hydrocarbons						
Diesel Range Organics-silica gel cleanup	200 ug/l	< 16 ug/l	< 15 ug/l	< 16 ug/l	< 17 ug/l	--
Chlorinated Dioxins / Furans						
2,3,7,8-Dioxin, tetra	0.0038 pg/l	--	< 0.525 pg/l	--	--	--
1,2,3,7,8-Dioxin penta	0.0084 pg/l	--	< 0.656 pg/l	--	--	--
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	--	< 0.517 pg/l	--	--	--
1,2,3,6,7,8-Dioxin, hexa	0.38 pg/l	--	< 0.464 pg/l	--	--	--
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	--	< 0.491 pg/l	--	--	--
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	--	< 3.91 pg/l	--	--	--
Dioxin octa	380 pg/l	--	35.9 j pg/l	--	--	--
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	--	< 0.613 pg/l	--	--	--
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	--	< 0.716 pg/l	--	--	--
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	--	< 0.710 pg/l	--	--	--
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	--	< 0.389 pg/l	--	--	--
1,2,3,6,7,8-Dibenzofuran, hexa	0.19 pg/l	--	< 0.368 pg/l	--	--	--
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	--	< 0.495 pg/l	--	--	--
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	--	< 0.423 pg/l	--	--	--
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	--	0.656 EMPC pg/l	--	--	--
1,2,3,4,7,8,9-Dibenzofuran, hepta	0.95 pg/l	--	< 0.554 pg/l	--	--	--
Dibenzofuran octa	190 pg/l	--	3.38 j pg/l	--	--	--

CR Displayed as the value for hexavalent chromium.
HD Hardness dependent.
N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that are estimates.
ND - Not detected.
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
EMPC - Estimated maximum possible concentration.

Table 27
Water Quality Data - Effluent
Groundwater Treatment System
St. Regis Paper Company Site

	Sys Loc Code	ADSB		ADSB		ADSB	
	Sample Date	5/3/2011		6/7/2011		7/6/2011	
	Sample Type Code	N	FD	N	FD	N	FD
Chemical Name	Effluent Limitation						
Exceedance Key	**Bold**						
Metals							
Arsenic	53 ug/l	0.3 j ug/l	--	0.4 j ug/l	0.3 j ug/l	0.45 j ug/l	--
Chromium	11 CR ug/l	< 0.02 ug/l	--	0.10 j ug/l	0.04 j ug/l	< 0.04 ug/l	--
Copper	9.8 HD ug/l	0.40 ug/l	--	0.56 ug/l	0.52 ug/l	0.63 ug/l	--
SVOCs							
2-Methylnaphthalene		< 0.0023 ug/l	< 0.0023 ug/l	< 0.0023 ug/l	--	< 0.0023 ug/l	--
Acenaphthene	12 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	< 0.0044 ug/l	--	< 0.0044 ug/l	--
Acenaphthylene		< 0.0034 ug/l	< 0.0034 ug/l	< 0.0034 ug/l	--	< 0.0034 ug/l	--
Anthracene	0.029 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	< 0.0036 ug/l	--	< 0.0036 ug/l	--
Benzo(a)anthracene		0.012 j ug/l	0.012 j ug/l	< 0.0076 ug/l	--	0.022 ug/l	--
Benzo(a)pyrene	**0.00051 ug/l**	**0.0052 j ug/l**	**0.0048 j ug/l**	< 0.0043 ug/l	--	**0.013 j ug/l**	--
Benzo(b)fluoranthene		0.0097 j ug/l	0.0097 j ug/l	0.0044 j ug/l	--	0.023 ug/l	--
Benzo(g,h,i)perylene		0.0070 j ug/l	< 0.0029 ug/l	< 0.0029 ug/l	--	0.0051 j ug/l	--
Benzo(k)fluoranthene		0.0038 j ug/l	0.0035 j ug/l	< 0.0025 ug/l	--	0.011 j ug/l	--
Chrysene		0.0091 j ug/l	0.0091 j ug/l	0.0041 j ug/l	--	0.015 j ug/l	--
Dibenz(a,h)anthracene		< 0.0025 ug/l	< 0.0025 ug/l	< 0.0025 ug/l	--	< 0.0025 ug/l	--
Fluoranthene	20 ug/l	0.025 ug/l	0.025 ug/l	0.019 ug/l	--	0.054 ug/l	--
Fluorene		< 0.0038 ug/l	< 0.0038 ug/l	< 0.0038 ug/l	--	< 0.0038 ug/l	--
Indeno(1,2,3-cd)pyrene		0.0032 j ug/l	< 0.0026 ug/l	< 0.0026 ug/l	--	0.0069 j ug/l	--
Naphthalene	81 ug/l	< 0.0030 ug/l	< 0.0030 ug/l	< 0.0030 ug/l	--	< 0.0030 ug/l	--
Phenanthrene	2.1 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	< 0.0050 ug/l	--	< 0.0050 ug/l	--
Pyrene		0.023 ug/l	0.023 ug/l	0.020 ug/l	--	0.050 ug/l	--
Pentachlorophenol	5.5 ug/l	0.072 j ug/l	--	< 0.074 ug/l	--	0.089 h ug/l	--
VOCs							
Benzene	114 ug/l	< 0.054 ug/l	--	< 0.054 ug/l	--	< 0.054 ug/l	< 0.054 ug/l
Ethyl benzene	68 ug/l	< 0.050 ug/l	--	< 0.050 ug/l	--	< 0.050 ug/l	< 0.050 ug/l
Toluene	253 ug/l	< 0.052 ug/l	--	< 0.052 ug/l	--	< 0.052 ug/l	< 0.052 ug/l
Xylene m & p	166 ug/l	< 0.091 ug/l	--	< 0.091 ug/l	--	< 0.091 ug/l	< 0.091 ug/l
Xylene, o-	166 ug/l	< 0.074 ug/l	--	< 0.074 ug/l	--	< 0.074 ug/l	< 0.074 ug/l
Total Petroleum Hydrocarbons							
Diesel Range Organics-silica gel cleanup	200 ug/l	< 16 ug/l	--	< 15 ug/l	--	< 17 ug/l	--
Chlorinated Dioxins / Furans							
2,3,7,8-Dioxin, tetra	0.0038 pg/l	< 1.60 pg/l	--	--	--	--	--
1,2,3,7,8-Dioxin penta	0.0084 pg/l	< 1.36 pg/l	--	--	--	--	--
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	< 0.941 pg/l	--	--	--	--	--
1,2,3,6,7,8-Dioxin, hexa	0.38 pg/l	< 0.811 pg/l	--	--	--	--	--
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	< 0.826 pg/l	--	--	--	--	--
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	**10.8 j pg/l**	--	--	--	--	--
Dioxin octa	380 pg/l	89.3 pg/l	--	--	--	--	--
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	< 1.64 * pg/l	--	--	--	--	--
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	< 1.47 pg/l	--	--	--	--	--
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	< 1.55 pg/l	--	--	--	--	--
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	< 0.872 pg/l	--	--	--	--	--
1,2,3,6,7,8-Dibenzofuran, hexa	0.19 pg/l	< 0.777 pg/l	--	--	--	--	--
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	< 1.08 pg/l	--	--	--	--	--
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	< 0.898 pg/l	--	--	--	--	--
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	< 4.83 pg/l	--	--	--	--	--
1,2,3,4,7,8,9-Dibenzofuran, hepta	0.95 pg/l	< 1.35 pg/l	--	--	--	--	--
Dibenzofuran octa	190 pg/l	< 15.6 pg/l	--	--	--	--	--

CR Displayed as the value for hexavalent chromium.
HD Hardness dependent.
N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that ar
ND - Not detected.
j - Reported value is less than the stated laboratory quantitatio
EMPC - Estimated maximum possible concentration.

Table 27
Water Quality Data - Effluent
Groundwater Treatment System
St. Regis Paper Company Site

	Sys Loc Code	ADSB		ADSB		ADSC
	Sample Date	8/3/2011		9/6/2011		10/4/2011
	Sample Type Code	N	FD	N	FD	N
Chemical Name	Effluent Limitation					
Exceedance Key	**Bold**					
Metals						
Arsenic	53 ug/l	0.59 ug/l	--	0.71 ug/l	--	0.86 ug/l
Chromium	11 CR ug/l	0.26 ug/l	--	0.17 j ug/l	--	0.17 j ug/l
Copper	9.8 HD ug/l	0.53 ug/l	--	0.43 ug/l	--	0.51 j ug/l
SVOCs						
2-Methylnaphthalene		< 0.0023 ug/l	--	0.0060 j ug/l	--	< 0.0023 ug/l
Acenaphthene	12 ug/l	< 0.0044 ug/l	--	< 0.0044 ug/l	--	0.012 j ug/l
Acenaphthylene		< 0.0034 ug/l	--	< 0.0034 ug/l	--	< 0.0034 ug/l
Anthracene	0.029 ug/l	< 0.0036 ug/l	--	< 0.0036 ug/l	--	0.0043 j ug/l
Benzo(a)anthracene		< 0.011 ug/l	--	0.0079 j ug/l	--	0.0057 j ug/l
Benzo(a)pyrene	**0.00051 ug/l**	**0.0048 j ug/l**	--	< 0.0043 ug/l	--	< 0.0043 ug/l
Benzo(b)fluoranthene		< 0.0083 ug/l	--	0.0046 j ug/l	--	< 0.0023 ug/l
Benzo(g,h,i)perylene		< 0.0029 ug/l	--	< 0.0029 ug/l	--	< 0.0029 ug/l
Benzo(k)fluoranthene		0.0042 j ug/l	--	< 0.0025 ug/l	--	< 0.0025 ug/l
Chrysene		0.0068 j ug/l	--	0.0040 j ug/l	--	< 0.0034 ug/l
Dibenz(a,h)anthracene		< 0.0025 ug/l	--	< 0.0025 ug/l	--	< 0.0025 ug/l
Fluoranthene	20 ug/l	0.024 ug/l	--	0.017 j ug/l	--	0.022 ug/l
Fluorene		< 0.0038 ug/l	--	0.0040 j ug/l	--	0.012 j ug/l
Indeno(1,2,3-cd)pyrene		< 0.0026 ug/l	--	< 0.0026 ug/l	--	< 0.0026 ug/l
Naphthalene	81 ug/l	< 0.0030 ug/l	--	0.0047 j ug/l	--	0.0042 j ug/l
Phenanthrene	2.1 ug/l	< 0.0050 ug/l	--	0.0052 j ug/l	--	0.011 j ug/l
Pyrene		0.026 ug/l	--	0.012 j ug/l	--	0.020 ug/l
Pentachlorophenol	5.5 ug/l	< 0.13 ug/l	0.090 j ug/l	< 0.070 ug/l	--	< 0.070 ug/l
VOCs						
Benzene	114 ug/l	< 0.054 ug/l	--	< 0.054 ug/l	--	< 0.054 ug/l
Ethyl benzene	68 ug/l	< 0.050 ug/l	--	< 0.050 ug/l	--	< 0.050 ug/l
Toluene	253 ug/l	< 0.052 ug/l	--	< 0.052 ug/l	--	< 0.052 ug/l
Xylene m & p	166 ug/l	< 0.091 ug/l	--	< 0.091 ug/l	--	< 0.091 ug/l
Xylene, o-	166 ug/l	< 0.074 ug/l	--	< 0.074 ug/l	--	< 0.074 ug/l
Total Petroleum Hydrocarbons						
Diesel Range Organics-silica gel cleanup	200 ug/l	< 16 ug/l	--	< 23 ug/l	< 30 ug/l	< 16 ug/l
Chlorinated Dioxins / Furans						
2,3,7,8-Dioxin, tetra	0.0038 pg/l	< 1.92 pg/l	--	--	--	--
1,2,3,7,8-Dioxin penta	0.0084 pg/l	< 2.09 pg/l	--	--	--	--
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	< 1.79 pg/l	--	--	--	--
1,2,3,6,7,8-Dioxin, hexa	0.38 pg/l	< 1.69 pg/l	--	--	--	--
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	< 1.69 pg/l	--	--	--	--
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	**15.6 j pg/l**	--	--	--	--
Dioxin octa	380 pg/l	150 pg/l	--	--	--	--
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	< 2.42 pg/l	--	--	--	--
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	< 1.78 pg/l	--	--	--	--
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	< 1.72 pg/l	--	--	--	--
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	< 1.24 pg/l	--	--	--	--
1,2,3,6,7,8-Dibenzofuran, hexa	0.19 pg/l	< 1.13 pg/l	--	--	--	--
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	< 1.52 pg/l	--	--	--	--
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	< 1.33 pg/l	--	--	--	--
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	2.08 EMPC pg/l	--	--	--	--
1,2,3,4,7,8,9-Dibenzofuran, hepta	0.95 pg/l	< 1.33 pg/l	--	--	--	--
Dibenzofuran octa	190 pg/l	15.2 j pg/l	--	--	--	--

CR Displayed as the value for hexavalent chromium.
HD Hardness dependent.
N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that a
ND - Not detected.
j - Reported value is less than the stated laboratory quantitatio
EMPC - Estimated maximum possible concentration.

Table 27
Water Quality Data - Effluent
Groundwater Treatment System
St. Regis Paper Company Site

	Sys Loc Code	ADSC		ADSC	
	Sample Date	11/2/2011		12/6/2011	
	Sample Type Code	N	FD	N	FD
Chemical Name	Effluent Limitation				
Exceedance Key	**Bold**				
Metals					
Arsenic	53 ug/l	0.59 ug/l	--	0.56 ug/l	--
Chromium	11 CR ug/l	< 0.15 ug/l	--	0.20 j ug/l	--
Copper	9.8 HD ug/l	0.48 ug/l	--	0.54 ug/l	--
SVOCs					
2-Methylnaphthalene		< 0.0023 ug/l	--	< 0.0023 ug/l	--
Acenaphthene	12 ug/l	0.0056 j ug/l	--	0.0070 j ug/l	--
Acenaphthylene		< 0.0034 ug/l	--	< 0.0034 ug/l	--
Anthracene	0.029 ug/l	< 0.0036 ug/l	--	< 0.0036 ug/l	--
Benzo(a)anthracene		0.0055 j ug/l	--	0.0039 j ug/l	--
Benzo(a)pyrene	**0.00051 ug/l**	**0.0055 j ug/l**	--	< 0.0043 ug/l	--
Benzo(b)fluoranthene		0.0066 j ug/l	--	< 0.0023 ug/l	--
Benzo(g,h,i)perylene		0.027 ug/l	--	< 0.0029 ug/l	--
Benzo(k)fluoranthene		0.0053 j ug/l	--	< 0.0025 ug/l	--
Chrysene		0.0036 j ug/l	--	< 0.0034 ug/l	--
Dibenz(a,h)anthracene		0.0065 j ug/l	--	< 0.0025 ug/l	--
Fluoranthene	20 ug/l	0.012 j ug/l	--	0.014 j ug/l	--
Fluorene		0.0071 j ug/l	--	0.0074 j ug/l	--
Indeno(1,2,3-cd)pyrene		0.013 j ug/l	--	< 0.0026 ug/l	--
Naphthalene	81 ug/l	< 0.0093 ug/l	--	< 0.0078 ug/l	--
Phenanthrene	2.1 ug/l	0.0097 j ug/l	--	0.0092 j ug/l	--
Pyrene		0.011 j ug/l	--	0.0090 j ug/l	--
Pentachlorophenol	5.5 ug/l	< 0.070 ug/l	--	< 0.070 ug/l	< 0.070 ug/l
VOCs					
Benzene	114 ug/l	< 0.054 ug/l	--	< 0.054 ug/l	--
Ethyl benzene	68 ug/l	< 0.050 ug/l	--	< 0.050 ug/l	--
Toluene	253 ug/l	< 0.052 ug/l	--	< 0.052 ug/l	--
Xylene m & p	166 ug/l	< 0.091 ug/l	--	< 0.091 ug/l	--
Xylene, o-	166 ug/l	< 0.074 ug/l	--	< 0.074 ug/l	--
Total Petroleum Hydrocarbons					
Diesel Range Organics-silica gel cleanup	200 ug/l	18 j ug/l	--	< 16 ug/l	--
Chlorinated Dioxins / Furans					
2,3,7,8-Dioxin, tetra	0.0038 pg/l	< 0.877 pg/l	< 0.738 pg/l	--	--
1,2,3,7,8-Dioxin penta	0.0084 pg/l	< 0.755 pg/l	< 0.719 pg/l	--	--
1,2,3,4,7,8-Dioxin, hexa	0.1267 pg/l	< 0.564 pg/l	< 0.807 pg/l	--	--
1,2,3,6,7,8-Dioxin, hexa	0.38 pg/l	< 0.496 pg/l	< 0.709 pg/l	--	--
1,2,3,7,8,9-Dioxin, hexa	0.38 pg/l	< 0.503 pg/l	< 0.721 pg/l	--	--
1,2,3,4,6,7,8-Dioxin, hepta	**7.6 pg/l**	< 4.06 pg/l	< 3.85 pg/l	--	--
Dioxin octa	380 pg/l	< 30.4 pg/l	< 33.4 pg/l	--	--
2,3,7,8-Dibenzofuran, tetra	0.0475 pg/l	< 0.724 pg/l	< 0.473 pg/l	--	--
1,2,3,7,8-Dibenzofuran, penta	0.38 pg/l	< 0.447 pg/l	< 0.487 pg/l	--	--
2,3,4,7,8-Dibenzofuran, penta	0.00475 pg/l	< 0.475 pg/l	< 0.518 pg/l	--	--
1,2,3,4,7,8-Dibenzofuran, hexa	0.475 pg/l	< 0.413 pg/l	< 0.472 pg/l	--	--
1,2,3,6,7,8-Dibenzofuran, hexa	0.19 pg/l	< 0.367 pg/l	< 0.420 pg/l	--	--
1,2,3,7,8,9-Dibenzofuran, hexa	0.0633 pg/l	< 0.498 pg/l	< 0.569 pg/l	--	--
2,3,4,6,7,8-Dibenzofuran, hexa	0.0543 pg/l	< 0.421 pg/l	< 0.481 pg/l	--	--
1,2,3,4,6,7,8-Dibenzofuran, hepta	38 pg/l	< 0.813 pg/l	< 0.997 pg/l	--	--
1,2,3,4,7,8,9-Dibenzofuran, hepta	0.95 pg/l	< 0.619 pg/l	< 0.745 pg/l	--	--
Dibenzofuran octa	190 pg/l	< 3.51 pg/l	< 5.30 pg/l	--	--

CR Displayed as the value for
hexavalent chromium.
HD Hardness dependent.
N - Sample Type: Normal
FD - Sample Type: Field Duplicate
a - Estimated value, calculated using some or all values that ar
ND - Not detected.
j - Reported value is less than the stated laboratory quantitatio
EMPC - Estimated maximum possible concentration.

Table 28
2011 Average Effluent pH
Groundwater Treatment System
St Regis Paper Company Site

Month	pH
Jan-11	7.0
Feb-11	7.1
Mar-11	7.1
Apr-11	7.1
May-11	7.0
Jun-11	7.0
Jul-11	7.0
Aug-11	7.0
Sep-11	7.1
Oct-11	7.1
Nov-11	7.0
Dec-11	7.1

Table 29
2011 Monthly Volume
Groundwater Treatment System
St Regis Paper Company Site

Month	Flow (10^6 gallons)
Jan-11	4.6
Feb-11	4.8
Mar-11	5.3
Apr-11	5.0
May-11	5.1
Jun-11	4.6
Jul-11	4.5
Aug-11	4.1
Sep-11	4.6
Oct-11	4.9
Nov-11	4.7
Dec-11	4.7
Total	56.8

Table 30
Groundwater Quality Data - Lower Aquifer
Fish Hatchery Wells
St. Regis Paper Company Site

		Sys Loc Code	Fish4
		Sample Date	5/4/2011
		Sample Type Code	N
Chemical Name	Drinking Water Criteria	Intervention Limit	
Exceedance Key	No Exceed	No Exceed	
SVOCs			
Benzo(a)anthracene			< 0.0026 ug/l
Chrysene			< 0.0034 ug/l
Benzo(b)fluoranthene			< 0.0023 ug/l
Benzo(k)fluoranthene			< 0.0025 ug/l
Benzo(a)pyrene		0.00051 ug/l	< 0.0043 ug/l
Indeno(1,2,3-cd)pyrene			< 0.0026 ug/l
Dibenz(a,h)anthracene			< 0.0025 ug/l
BaP equivalent, non-detects at half of the detection limit.[1]	0.05 ug/l		< 0.0034 ug/l
BaP equivalent, non-detects at zero for the detection limit.[2]	0.05 ug/l		ND ug/l
2-Methylnaphthalene			< 0.0023 ug/l
Acenaphthene	400 ug/l		< 0.0044 ug/l
Acenaphthylene			< 0.0034 ug/l
Anthracene	2000 ug/l	0.035 ug/l	< 0.0036 ug/l
Benzo(g,h,i)perylene			< 0.0029 ug/l
Fluoranthene	300 ug/l		< 0.0044 ug/l
Fluorene	300 ug/l		< 0.0038 ug/l
Naphthalene	300 ug/l		0.017 j ug/l
Phenanthrene			< 0.0050 ug/l
Pyrene	200 ug/l		< 0.0035 ug/l
Pentachlorophenol	1 ug/l	5.5 ug/l	< 0.070 ug/l

N - Sample Type: Normal
j - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

Table 30
Groundwater Quality Data - Lower Aquifer
Fish Hatchery Wells
St. Regis Paper Company Site

1 Total BaP equivalence (2002) calculated using half of the detection limit on the non detected compounds.
2 Total BaP equivalence (2002) calculated using zero for the detection limit on the non detected compounds.

	CAS No.	Site Conc. (ug/l) dry weight	Relative Potency Factor	BaP Equivalent (ug/l)
Benzo(a)anthracene	56553	0.000	0.1	0.000
Benzo(b)fluoranthene	205992	0.000	0.1	0.000
Benzo(k)fluoranthene	207089	0.000	0.1	0.000
Benzo(a)pyrene	50328	0.000	1	0.000
Chrysene	218019	0.000	0.01	0.000
Dibenz(a,h)anthracene	53703	0.000	0.56	0.000
Indeno(1,2,3-cd)pyrene	193395	0.000	0.1	0.000
		Total BaP equivalence = compare this value to the BaP criteria		0.000

Table 31
Water Quality Data Over Time
[Data Typically from 2nd Quarter of Each Year]
Fish Hatchery Wells
Cass Lake, Minnesota
(concentrations in ug/L)

	Fish 1			Fish 2			Fish 3			Fish 4		
Year	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**	**BaP Eq**	**Naph.**	**PCP**
DWC	0.05	300	1	0.05	300	1	0.05	300	1	0.05	300	1
May-92	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.003 U	0.004 U	6 U	0.045 U	0.62	6 U
Dec-92	---	---	---	---	---	---	---	---	---	0.003 U	0.09	---
Jun-93	---	---	---	---	---	---	---	---	---	---	---	6 U
Jul-93	---	---	---	---	---	---	---	---	---	0.003 U	0.00958	---
Feb-94	---	---	---	---	---	---	---	---	---	0.089 U	0.666	6 U
Jun-94	---	---	---	---	---	---	---	---	---	0.089 U	1.11	3 U
Dec-94	---	---	---	---	---	---	---	---	---	0.003 U	0.012	3 U
Jun-95	0.003 U	0.003 U	3 U	0.003 U	0.003 U	3 U	0.003 U	0.005	3 U	0.3 U	2.6	3 U
Nov-95	---	---	---	---	---	---	---	---	---	0.0095 U	0.006 U	3 U
Jun-97	---	---	---	---	---	---	---	---	---	9.9 U	3	50 U
May-98	---	---	---	---	---	---	---	---	---	0.1 U	0.2	0.5 U
May-99	---	---	---	---	---	---	---	---	---	0.02 U	0.32	3 U
Apr-00	---	---	---	---	---	---	---	---	---	0.02 U	0.03	0.5 U
Apr-01	---	---	---	---	---	---	---	---	---	0.019 U	0.0019 U	0.5 U
May-02	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	3 U
May-03	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	0.5 U
Apr-04	---	---	---	---	---	---	---	---	---	0.019 U	0.019 U	0.95 U
May-05	---	---	---	---	---	---	---	---	---	0.02 U	0.02 U	0.5 U
Sep-06	0.004 U	0.0065 U	0.13 U	0.004 U	0.0065 U	0.13 U	0.004 U	0.065 U	0.13 U	0.004 U	0.0065 U	0.13 U
May-07	0.004 U	0.0065 U	0.13 U	0.004 U	0.0092 U	0.13 U	0.004 U	0.022 U	0.13 U	0.004 U	0.01 U	0.13 U
May-08	0.0034 U	0.017 U	0.080 U	0.0034 U	0.0080 U	0.080 U	0.0034 U	0.0097 U	0.080 U	0.0034 U	0.017 U	0.080 U
May-09	---	---	---	---	---	---	---	---	---	0.0066 A	0.0060 U	0.16 U
Oct-09	---	---	---	---	---	---	---	---	---	0.0034 U	0.0060 J	0.16 U
May-10	0.0034 U	0.035	0.16 U	0.0034 U	0.039	0.16 U	0.0034 U	0.035	0.16 U	0.0034 U	0.046	0.16 U
May-11	---	---	---	---	---	---	---	---	---	0.0034 U	0.017 J	0.070 U

--- No sample collected or analyzed.

A Estimated value, calculated using some or all values that are estimates.

U Value is non-detect at the method reporting limit.

BaP Eq - Benzo(a)pyrene equivalency calculated at ND = 1/2 DL.

Naph. - Naphthalene concentration

PCP - Pentachlorophenol concentration

J - Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.

5/15/2012 3:03 PM
P:\Mpls\23 MN\11\2311005\WorkFiles\Annual Reports\2011 Annual Report\Tables - DB\Table 31 (Fish-Over Time).xls

Table 32
Leachate Elevations
OU2- Containment Vault
St. Regis Paper Company and City Dump Pit Sites

Date	Leachate Collection Manhole [ft MSL]	Leak Detection Manhole [ft MSL]
05/17/04	1313.32	1313.28
11/05/04	1313.34	1312.89
05/11/05	1313.36	1313.26
10/03/05	1313.53	1313.35
11/02/05	1313.28	1312.60
05/12/06	1313.78	1313.14
11/09/06	1313.46	1313.20
11/21/06	1312.42	1311.42
05/04/07	1313.66	1312.97
08/15/07	1313.76	1313.05
08/16/07	1312.35	1311.41
11/14/07	1313.56	1312.84
05/06/08	1313.40	1313.07
09/09/08	1312.44	1311.68
11/07/08	1313.68	1312.89
05/11/09	1313.80	1313.17
11/03/09	1313.73	1313.28
04/14/10	1313.71	1313.41
10/15/10	1313.14	1313.02
10/29/10	1313.11	1312.96

Notes:

LCM - Bottom elevation - 1312.19 ft MSL

LDM - Bottom elevation - 1311.20 ft MSL

MSL - Mean sea level based on NAVD88.

Table 33
Benchmark Elevations
OU2 - Containment Vault Operable Unit
St. Regis Paper Company Site

[Elevations in Ft. MSL]

Date	BM-1 [ft MSL]	BM-2 [ft MSL]	BM-3 [ft MSL]	BM-4 [ft MSL]	BM-5 [ft MSL]
12/21/88	1341.41	1338.42	1338.89	1341.18	1338.83
04/08/91	1341.44	1338.46	1338.93	1341.21	1338.82
08/09/92	1341.43	1338.44	1338.93	1341.20	1338.83
10/07/93	1341.49	1338.56	1339.05	1341.17	1338.85
06/16/94	1341.69	1338.69	1339.17	1341.46	1338.98
06/09/95	1341.70	1338.74	1339.19	1341.47	1339.09
06/04/96	1341.69	1338.70	1339.18	1341.47	1339.08
06/04/97	1341.69	1338.72	1339.20		1339.09
05/01/98	1341.68	1338.67	1339.18	1341.46	1339.07
05/14/99	1341.68	1338.69	1339.17	1341.46	1339.06
04/06/00	1341.68	1338.68	1339.14	1341.46	1339.08
04/27/01	1341.67	1338.70	1339.17	1341.45	1339.06
05/06/02	1341.70	1338.70	1339.16	1341.45	1339.06
05/12/03	1341.68	1338.70	1339.18	1341.46	1339.07
04/28/04	1341.68	1338.72	1339.19	1341.46	1339.08
05/06/05	1341.69	1338.71	1339.18	1341.47	1339.07
09/08/06	1341.70	1338.72	1339.18	1341.47	1339.08
05/10/07	1341.69	1338.72	1339.18	1341.47	1339.07
05/23/08	1341.69	1338.71	1339.18	1341.46	1339.06
05/15/09	1341.68	1338.70	1339.17	1341.43	1339.06
05/06/10	1341.67	1338.69	1339.15	1341.44	1339.04
05/11/11	1341.67	1338.70	1339.16	1341.46	1339.06

MSL - Mean sea level based on NAVD88.

Table 34
Annual Sample Program - 2012
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
OU1-	Top of Surficial	W104	P		1		1						2
Treating Facility		W105R	I		2		2						2
Area		W112	P		1		1						2
		W114	I		1		1						2
		W115	I		1		1						2
		W118 (3)	P	1		1							2
	Bottom of Surficial	W205	P		1		1						2
		W209	P		1		1						2
		W212 (2)	I										2
		W213 (2)	I										2
		W215	I		1		1	1					2
		W217	P		1		1						2
		W218	P		1		1						2
		W219	P		1		1						2
		W220 (2)	I					1					2
		W221	P		1		1						2
		W222											2
		W223											2
	Lower Aquifer	MW3	P		1		1						2
		W302	P		1		1						2
		W306	I		1		1						2
	Pump-out Wells	W401	P	1		1							2
		W402	P	1		1							2
		W403	P	1		1							2
		W404	P	1		1							2
		W405	P	1		1							2
		W406	P		1		1						2
		W407	P		1		1						2
		W408	I	1		1							2
		W409	P	1			1	1					2
		W410	P	1			1						2
		W411	P		1		1						2
	Observation Wells	W509											2
		W510											2
		W511											2
		W512											2
		W513											2
		W514											2
	Special Observation	SO401	PMC										2
	Wells	SO402											2
		SO403											2
		SO405											2
	Channel	CL-N	I		1								
		CL-S	I		1								
		North Staff											2
		RR Staff											2
		South Staff											2

Table 34
Annual Sample Program - 2012
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
OU2 -	Upper Aquifer	W124	I		1		1						2
Containment		W125	I		1		1						2
Vault Area		W126	I		1		1						2
		W127	I		1		1						2
		W128	I		1		1						2
		W129	I		1		1						2
		W130	I		1		1						2
	Lower Aquifer	W324	I		1		1						2
		W329	I		1		1						2
		W330	I		1		1						2
OU3 -	Top of Surficial	W2102	PMC										2
City Dump Pit		W2103	PMC										2
Area		W2104	PMC										2
		W2105	PMC										2
		W2106	I	1		1						1	2
		W2127	I		1		1						2
		W2128 (2)	I					1					2
		W2129	I		1		1						2
		W2134	P		1		1						2
		W2135	I		1		1						2
		W2140	I		1		1		1	1	1	1	2
	Bottom of Surficial	W2228	I		1		1		1	1	1	1	2
		W2233 (2)	I										2
		W2234	I		1		1						2
		W2236 (2)	I										2
		W2237R	I		1		1		1	1	1	1	2
		W2238	I		1		1		1	1	1	1	2
		W2239	I		1		1		1	1	1	1	2
	Lower Aquifer	W2301	P		1		1						2
		W2325	P		1		1						2
		W2326	P		1		1						2
		W2329	P		1		1						2
		W2333	P		1		1						2
		W2335	I		1		1						2
		W2336 (2)											2
		W2339	I		1		1		1	1	1	1	2
	Pump-out Wells	W2401	P	1		1							2
		W2402	P	1		1							2
		W2403	P	1		1							2
	Scavenger Wells	S2401	PMC										2
		S2402	PMC										2
		S2403	P										2
	Observation Wells	W2501											2
		W2502											2
		W2504											2
		W2505											2
	Fox Creek	@ W2127											2
	Fox Creek	@ CR 147											2

Table 34
Annual Sample Program - 2012
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Metals	Dioxins	Water Level (1)
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	6020; 7195/6010B	8290	
Additional Wells	HatcheryWells	Fish 1	P		1		1						
		Fish 2	P		1		1						
		Fish 3	P		1		1						
		Fish 4	I		1		1						
		W231											2
	Enbridge Wells	W772347											2
		W772348											2
Number of Samples				13	52	11	52	4	6	6		7	192
Number of QC Samples													
	Duplicates	5%		1	3	1	3	1	1	1		1	10
	Field Blanks	5%		1	3	1	3	1	1	1		1	--
	MS/MSD	5%		1	3	1	3	1	1	1		1	--
Total Number of Samples				16	61	14	61	7	9	9		10	202

Notes:

This table identifies the number of samples at each station over the year.

(1) Water levels will be measured in during the spring and fall sampling event.

(2) See Quarterly Sample Program (Table 36)

(3) Collect sample, if no product present in water column.

Category

I - Indicator Monitoring Station (Annual Sampling)

P - Performance Monitoring Station (Biennial Sampling)

PMC - Product Monitoring and Collection Station

Table 35
Quarterly Sample Program - 2012
Groundwater and Surface Water Monitoring
St. Regis Paper Company and City Dump Pit Sites

Operable Unit	Screened Interval	Station	Category	PCP		PAHs			BETX	DRO	Dioxins	Water Level
				8270	8151	8270	8270-SIM	8270-SIM (Calif.)	8260	8015M	8290	
OU1-	Bottom of Surficial	W212	I		4		4		4	4	4	4
Treating Facility		W213	I		4		4		4	4	4	4
Area		W220	I		4		4		4	4	4	4
OU3 -	Top of Surficial	W2128	I		4		4		4	4	4	4
City Dump Pit	Bottom of Surficial	W2233	I		4		4		4	4	4	4
Site		W2236	I		4		4		4	4	4	4
	Lower Aquifer	W2336	I		4		4		4	4	4	4
Number of Samples				0	28	0	28	0	28	28	28	28
Number of QC Samples [(1)]												
	Duplicates			0	2	0	2	0	3	3	3	2
	Field Blanks			0	2	0	2	0	3	3	3	--
	MS/MSD			0	2	0	2	0	3	3	3	--
Total Number of Samples				0	34	0	34	0	37	37	37	30

Notes:

This table identifies the number of samples at each station over the year.

[(1)] Number of QC samples as follows:

PCP - 5%
PAH - 5%
BETX - 10%
DRO - 10%
Dioxins - 10%

Category

I - Indicator Monitoring Station (Annual Sampling)

P - Performance Monitoring Station (Biennial Sampling)

PMC - Product Monitoring and Collection Station

Table 36
Monthly Sample Program - 2012
Effluent and GAC Performance Monitoring Program
St. Regis Paper Company and City Dump Pit Sites

		PCP				PAHs	Metals [A]	BETX	DRO	Dioxins/furans
		8151M				8270-SIM	6020; 7195/6010B	8620	8015B	8290
Month		Influent	Primary	Secondary	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent
January		1	1	1	1	1	1	1	1	
February		1	1	1	1	1	1	1	1	1
March		1	1	1	1	1	1	1	1	
April		1	1	1	1	1	1	1	1	
May		1	1	1	1	1	1	1	1	1
June		1	1	1	1	1	1	1	1	
July		1	1	1	1	1	1	1	1	
August		1	1	1	1	1	1	1	1	1
September		1	1	1	1	1	1	1	1	
October		1	1	1	1	1	1	1	1	
November		1	1	1	1	1	1	1	1	1
December		1	1	1	1	1	1	1	1	
Number of Samples		48				12	12	12	12	4
Number of QC Samples										
Duplicate	5%	3				1	1	1	1	1
Field Blank	5%	3				1	1	1	1	1
MS/MSD	5%	3				1	1	1	1	1
Trip Blank [B]	--	--				--	--	12	--	--
Total Number of Samples		57				15	15	27	15	7

Notes:

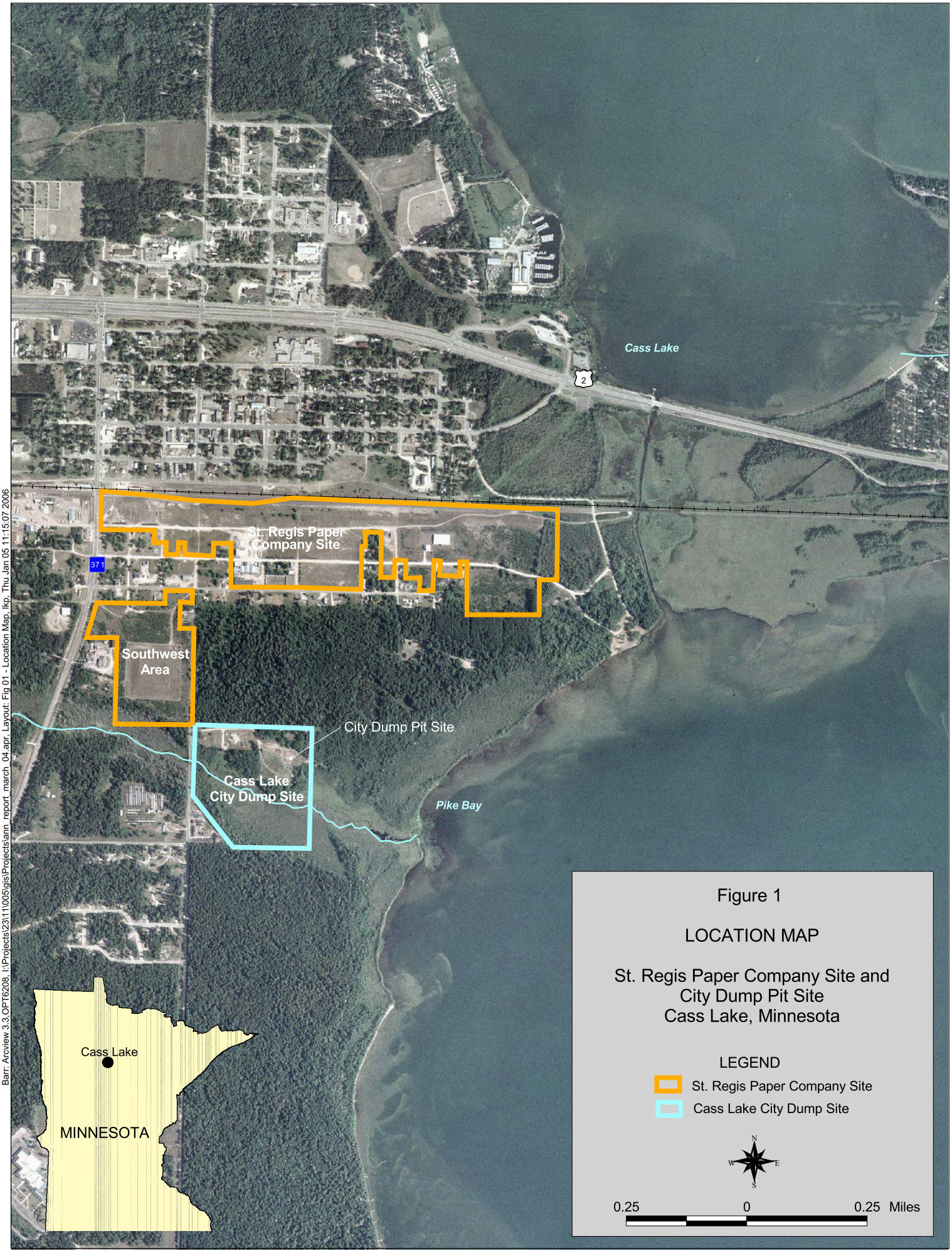
[A] Arsenic, Copper, & Chromium. If chromium exceeds 11 µg/L in any effluent sample, additional effluent samples will be collected and analyzed for hexavalent and trivalent chromium.

[B] One trip blank per event when BETX samples are collected.

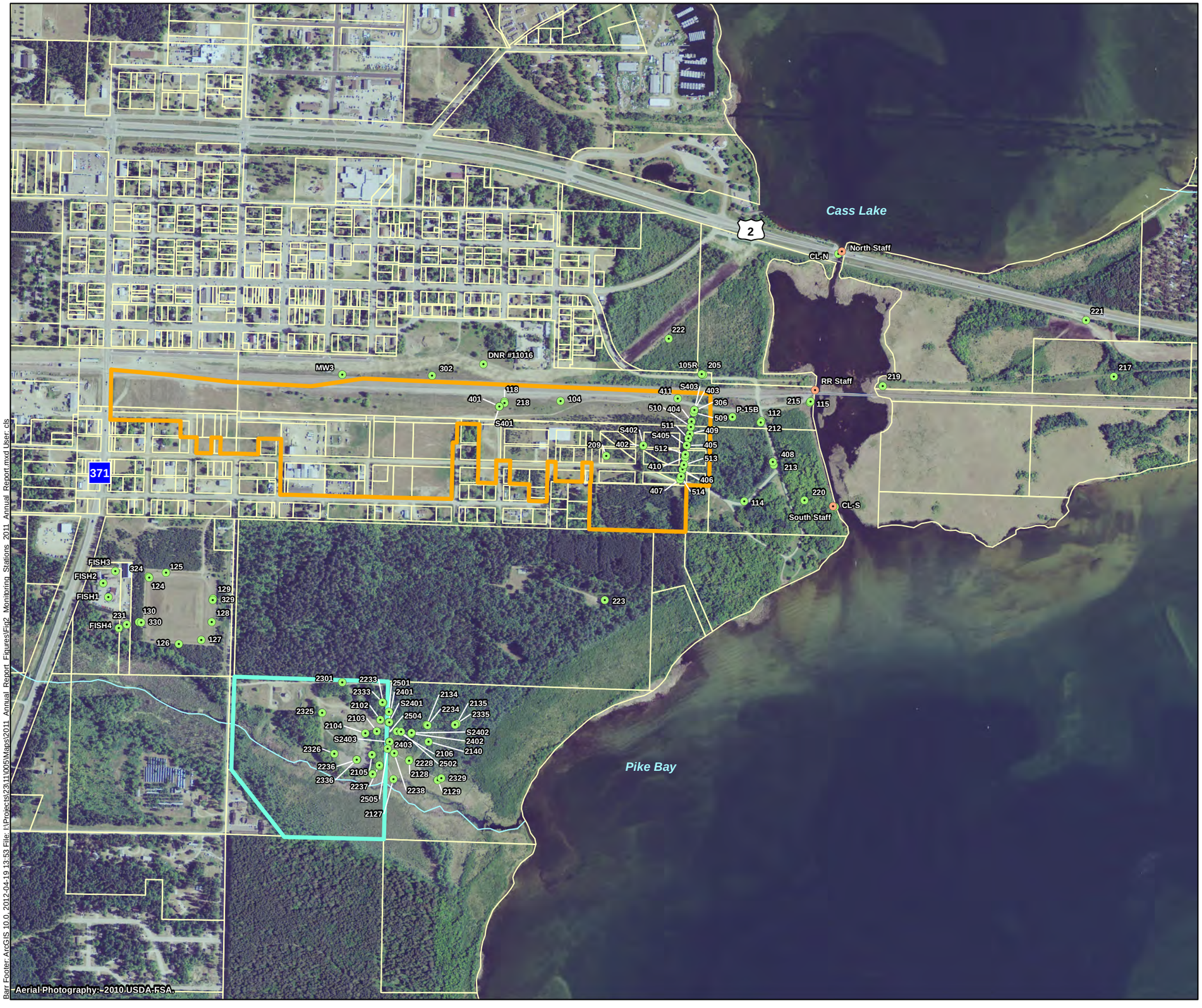
Flow rate and pH are measured continuously.

Numbers indicate the number of samples during each event.

Figures



Barr: Arcview 3.3,OPT6208, I:\Projects\23\11\005\gis\Projects\ann_report_march_04.apr, Layout: Fig 01 - Location Map, lkp, Thu Jan 05 11:15:07 2006



Groundwater Monitoring Stations

Surface Water Monitoring Stations

St. Regis Paper Co Site

City Dump Area

N

Feet

800 0 800

Meters

150 0 150 300 450

Figure 2

MONITORING STATIONS
St. Regis Paper Company Site
Cass Lake, MN

Barr Footer: ArcGIS 10.0, 2012-05-17 15:28 File: X:\projects\23\11\009\gis\Maps\GW_Contour\2011\Figure 3 Surficial Aquifer OU1 04-28 Comprehensive.mxd User: jwk

Extraction well (Control point based on measured elevation and extraction rate)

Staff gauge

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 PCP or Naphthalene in ug/L

1 PCP Contour (1 ug/L)

100 PCP Contour (100 ug/L)

10 Naphthalene Contour (10 ug/L)

Groundwater elevation contour (Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Groundwater flow path (forward particle trace)

Approximate hydraulic capture zone

Note: Only points used to generate contours shown on map

Feet

400 0 400 800

Meters

100 0 100 200 300

Figure 3

GROUNDWATER ELEVATIONS
SURFICIAL AQUIFER - OU1
April 28, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

Extraction well (Control point based on measured elevation and extraction rate)

Staff gauge

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 PCP or Naphthalene in ug/L

1 PCP Contour (1 ug/L)

100 PCP Contour (100 ug/L)

10 Naphthalene Contour (10 ug/L)

LNAPL Extent (Dashed Where Inferred)

DNAPL Extent (Dashed Where Inferred)

Groundwater elevation contour (Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Groundwater flow path (forward particle trace)

Approximate hydraulic capture zone

Note: Only points used to generate contours shown on map

N

Feet

400 0 400 800

Meters

100 0 100 200 300

Figure 4

GROUNDWATER ELEVATIONS
TOP OF SURFICIAL AQUIFER - OU3
April 28, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

Barr Footer: ArcGIS 10.0, 2012-05-17 17:21 File: X:\projects\23\11\005\gis\Maps\GW_Contour\2011\Figure 4 Top of Surficial Aquifer OU3 04-28 Comprehensive.mxd User: jwk

Extraction well (Control point based on measured elevation and extraction rate)

Staff gauge

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 PCP or Naphthalene in ug/L

PCP Contour (1 ug/L)

PCP Contour (100 ug/L)

Naphthalene Contour (10 ug/L)

LNAPL Extent (Dashed Where Inferred)

DNAPL Extent (Dashed Where Inferred)

Groundwater elevation contour (Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Groundwater flow path (forward particle trace)

Approximate hydraulic capture zone

Note: Only points used to generate contours shown on map

Feet

400 0 400 800

Meters

100 0 100 200 300

Figure 5

GROUNDWATER ELEVATIONS
BOTTOM OF SURFICIAL AQUIFER - OU3
April 28, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

Barr Footer: ArcGIS 10.0, 2012-05-17 17:22 File: X:\projects\23\11\005\gis\Maps\GW_Contour\2011\Figure 5 Bottom of Surficial Aquifer OU3 04-28 Comprehensive.mxd User: jwk

Barr Footer: ArcGIS 10.0, 2012-05-18 09:24 File: X:\projects\23\11005\gis\Maps\GW Contour\2011\Figure 6 Lower Aquifer 04-28 Comprehensive.mxd User: jwk

- Monitoring well/piezometer
- Control point
- Groundwater Monitoring Stations
- Surface Water Monitoring Stations
- 7.1 PCP or Naphthalene in ug/L
- Groundwater elevation contour (Contour interval = 0.5 ft)
- Groundwater flow path (reverse particle trace)

Note: Only points used to generate contours shown on map

Feet
600 0 600 1,200

Meters
200 0 200 400

Figure 6

GROUNDWATER ELEVATIONS
LOWER AQUIFER
April 28, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

Barr Footer: ArcGIS 10.0, 2012-05-18 08:57 File: X:\projects\23111005\gis\Maps\GW_Contour\2011\Figure 7 Surficial Aquifer OU1 10-26 Comprehensive.mxd User: jwk

Extraction well (Control point based on measured elevation and extraction rate)

Staff gauge

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 — PCP or Naphthalene in ug/L

PCP Contour (1 ug/L)

PCP Contour (100 ug/L)

Naphthalene Contour (10 ug/L)

Groundwater elevation contour (Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Groundwater flow path (forward particle trace)

Approximate hydraulic capture zone

W408 1302.24 — Anomalous groundwater elevation, not used in generating contours

Note: Only points used to generate contours shown on map

Feet

400 0 400 800

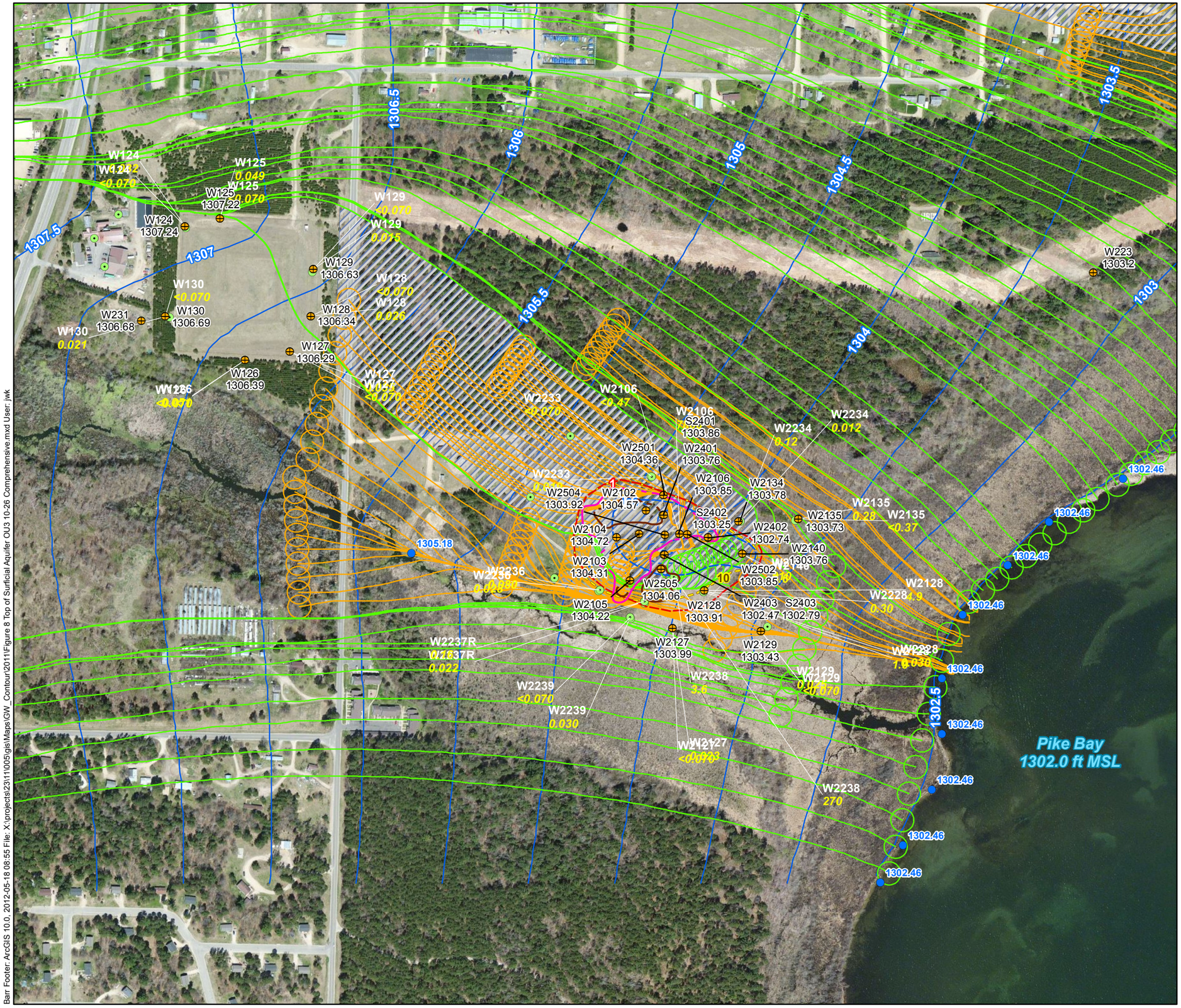
Meters

100 0 100 200 300

Figure 7

GROUNDWATER ELEVATIONS
SURFICIAL AQUIFER - OU1
October 26, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011



Barr Footer: ArcGIS 10.0, 2012-05-18 08:55 File: X:\projects\23\11\005\gis\Maps\GW_Contour\2011\Figure 8 Top of Surficial Aquifer OU3 10-26 Comprehensive.mxd User: jwk

- Extraction well (Control point based on measured elevation and extraction rate)
- Staff gauge
- Monitoring well/piezometer
- Control point
- Groundwater Monitoring Stations
- Surface Water Monitoring Stations
- 7.1 — PCP or Naphthalene in ug/L
- -1- — PCP Contour (1 ug/L)
- -100- — PCP Contour (100 ug/L)
- 10 — Naphthalene Contour (10 ug/L)
- LNAPL Extent (Dashed Where Inferred)
- DNAPL Extent (Dashed Where Inferred)
- Groundwater elevation contour (Contour interval = 0.5 ft)
- Groundwater flow path (reverse particle trace)
- Groundwater flow path (forward particle trace)
- Approximate hydraulic capture zone

Note: Only points used to generate contours shown on map

N

Feet

400 0 400 800

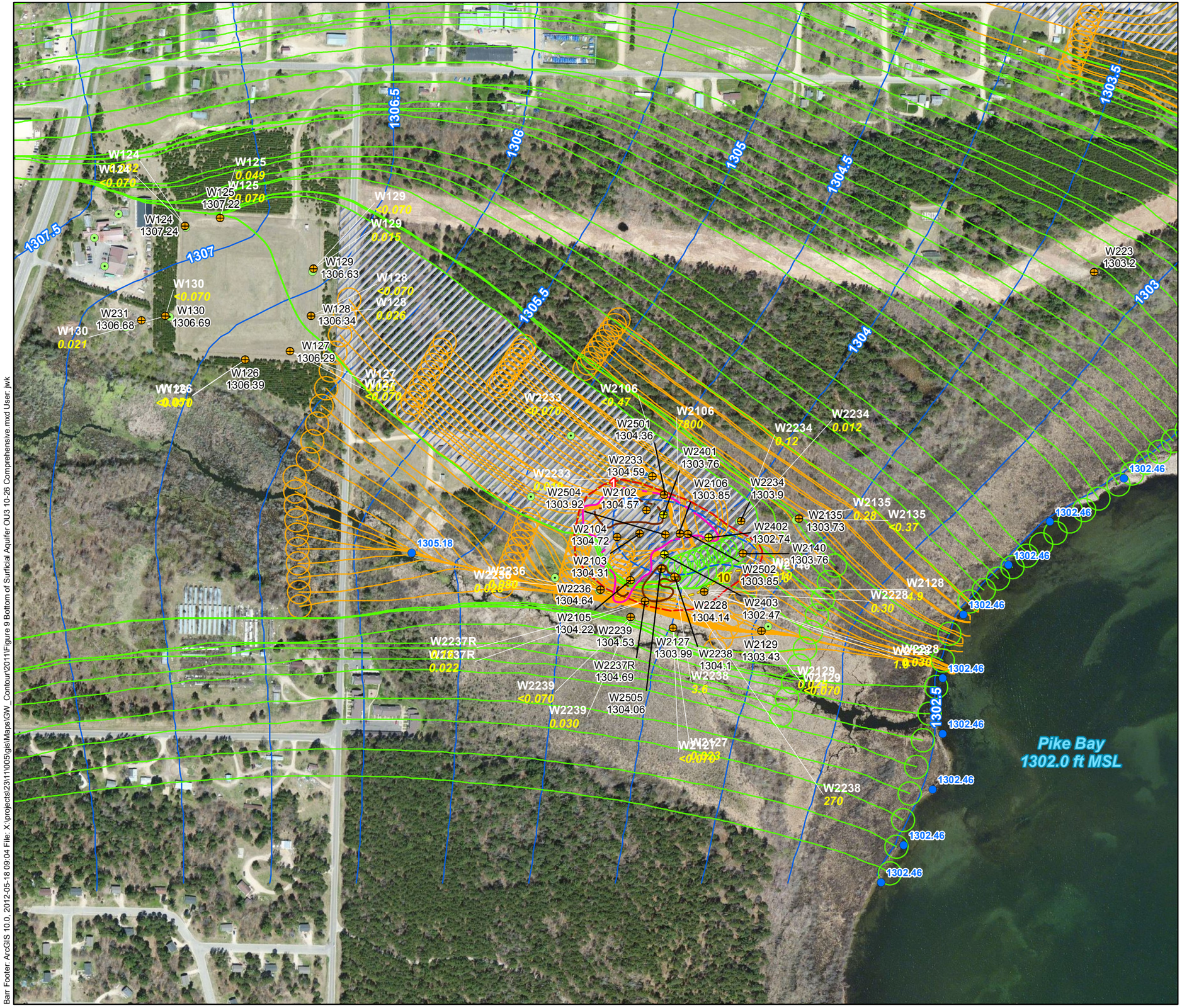
Meters

100 0 100 200 300

Figure 8

GROUNDWATER ELEVATIONS
TOP OF SURFICIAL AQUIFER - OU3
October 26, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011



Extraction well (Control point based on measured elevation and extraction rate)

Staff gauge

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 PCP or Naphthalene in ug/L

1 PCP Contour (1 ug/L)

100 PCP Contour (100 ug/L)

10 Naphthalene Contour (10 ug/L)

LNAPL Extent (Dashed Where Inferred)

DNAPL Extent (Dashed Where Inferred)

Groundwater elevation contour (Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Groundwater flow path (forward particle trace)

Approximate hydraulic capture zone

Note: Only points used to generate contours shown on map

N

Feet

400 0 400 800

Meters

100 0 100 200 300

Figure 9

GROUNDWATER ELEVATIONS
BOTTOM OF SURFICIAL AQUIFER - OU3
October 26, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

Barr Footer: ArcGIS 10.0, 2012-05-18 09:04 File: X:\projects\23\11\005\gis\Maps\GW_Contour\2011\Figure 9 Bottom of Surficial Aquifer OU3 10-26 Comprehensive.mxd User: jwk

Barr Footer: ArcGIS 10.0, 2012-05-18 09:31 File: X:\projects\23\111\005\gis\Maps\GW Contour\2011\Figure 10 Lower Aquifer 10-26 Comprehensive.mxd User: jwk

Monitoring well/piezometer

Control point

Groundwater Monitoring Stations

Surface Water Monitoring Stations

7.1 PCP or Naphthalene in ug/L

Groundwater elevation contour
(Contour interval = 0.5 ft)

Groundwater flow path (reverse particle trace)

Note: Only points used to generate contours shown on map

Feet
600 0 600 1,200

Meters
200 0 200 400

Figure 10

GROUNDWATER ELEVATIONS
LOWER AQUIFER
October 26, 2011
St. Regis Paper Company Site
Cass Lake, Minnesota

True color Geoeye Satellite Imagery Circa Fall, 2011

7.1 PCP in ug/L

PCP Contour (1 ug/L)

PCP Contour (100 ug/L)

Groundwater Monitoring Stations

Surface Water Monitoring Stations

St. Regis Paper Co Site

City Dump Area

N

Feet

400 0 400 800 1,200 1,600

Meters

150 0 150 300 450

Figure 11

PENTACHLOROPHENOL DISTRIBUTION
SURFICIAL AQUIFER
St. Regis Paper Company Site
Cass Lake, MN

Barr Footer: ArcGIS 10.0, 2012-03-12 14:44 File: I:\Projects\23\11\005\Maps\2011 Annual Report Figures\Fig11 PCP Distribution Surficial Aquifer-2011.mxd User: cls

2,600 Naphthalene in ug/L

10 Naphthalene Contour (10 ug/L)

Groundwater Monitoring Stations

Surface Water Monitoring Stations

St. Regis Paper Co Site

City Dump Area

N

Feet

400 0 400 800 1,200 1,600

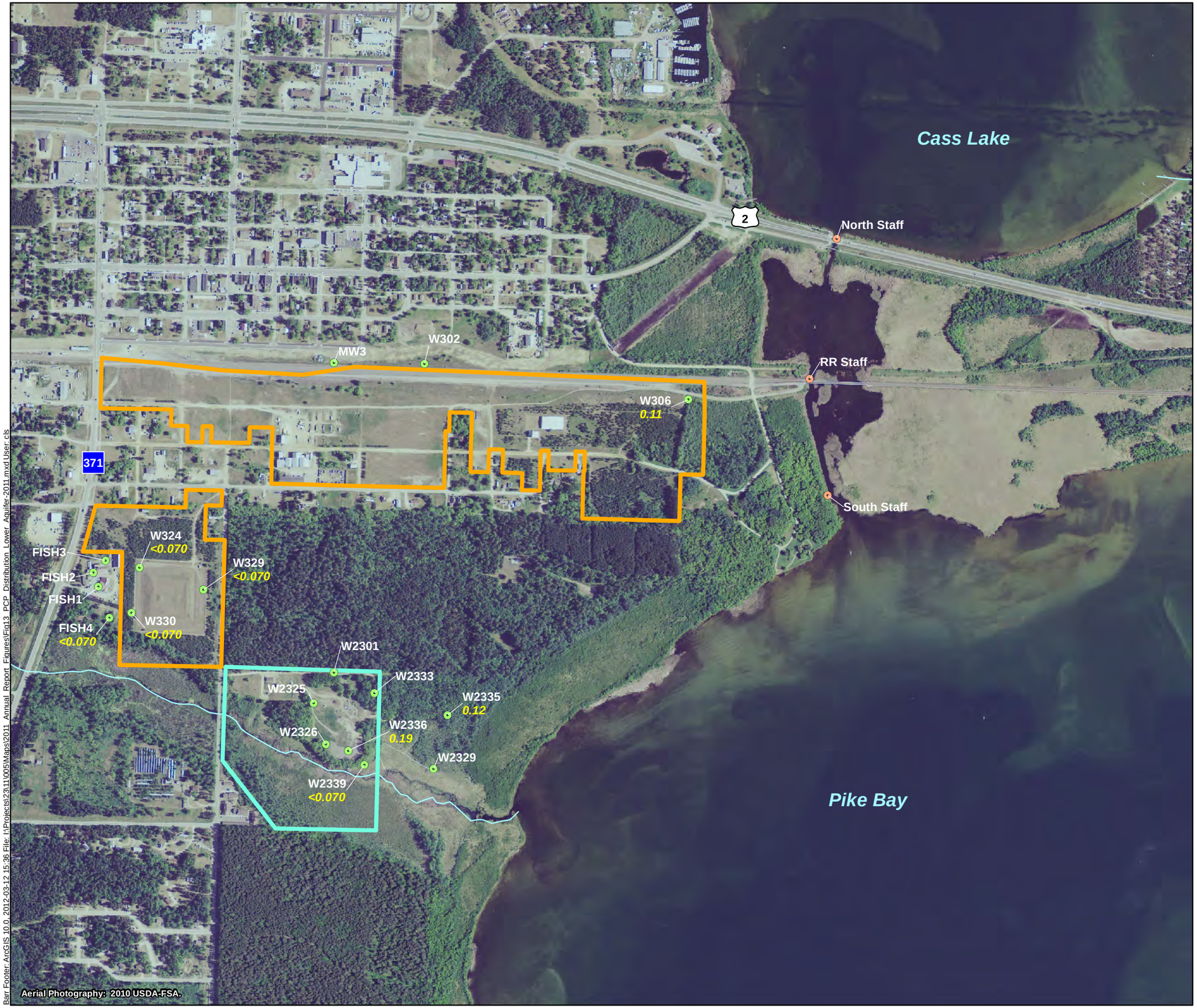
Meters

150 0 150 300 450

Figure 12

NAPHTHALENE DISTRIBUTION
SURFICIAL AQUIFER
St. Regis Paper Company Site
Cass Lake, MN

Barr Footer: ArcGIS 10.0, 2011-07-27 16:51:51.515000 File: I:\Projects\23\11005\Maps\2010 Annual Report Figures\Fin12 NAPTH_Distribution_Surficial_Aquifer-2010.mxd User: sal2



7.1 PCP in ug/L

Groundwater Monitoring Stations

Surface Water Monitoring Stations

St. Regis Paper Co Site

City Dump Area

N

Feet

400 0 400 800 1,200 1,600

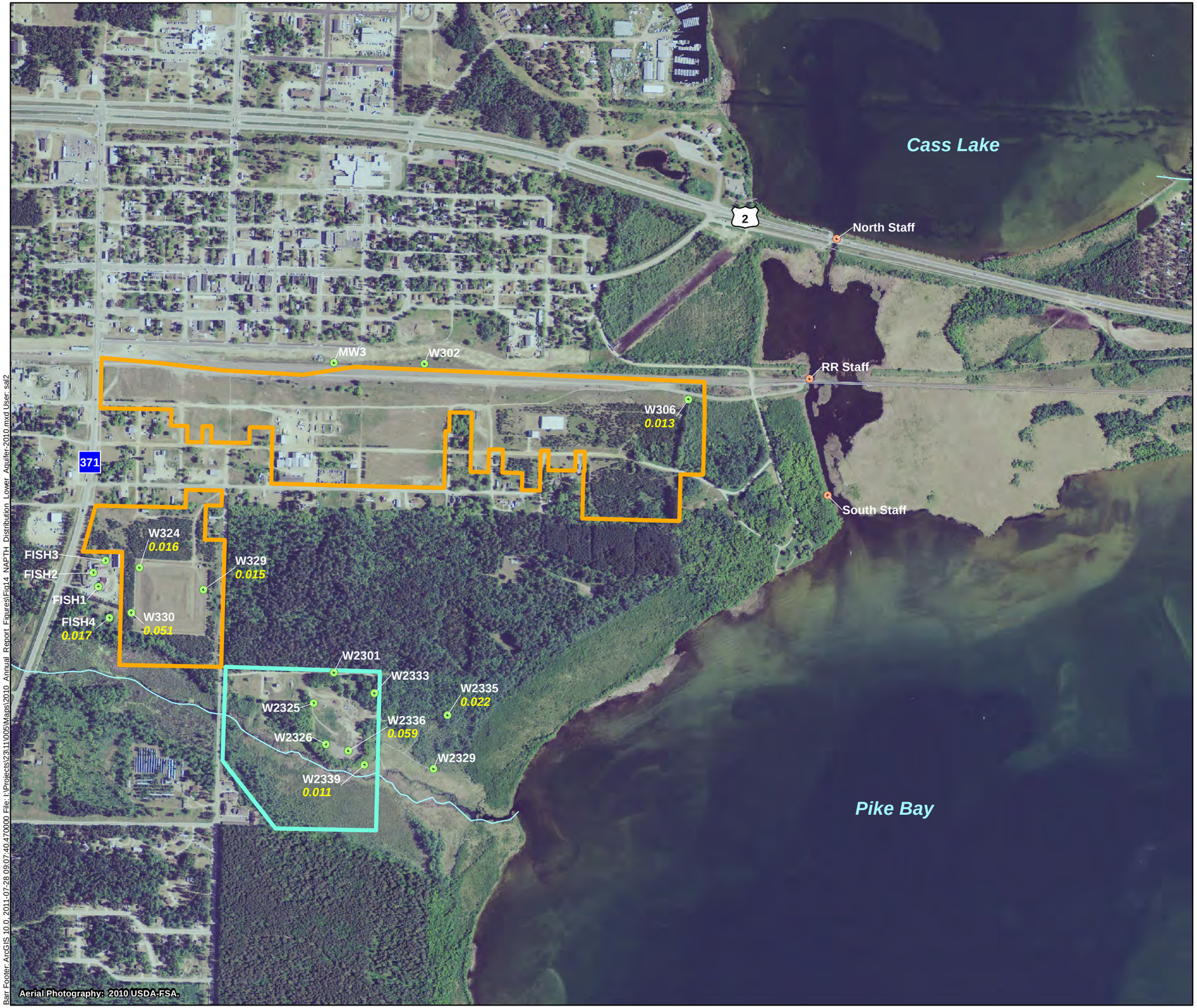
Meters

150 0 150 300 450 600

Figure 13

PENTACHLOROPHENOL DISTRIBUTION
LOWER AQUIFER
St. Regis Paper Company Site
Cass Lake, MN

Barr Footer: ArcGIS 10.0, 2012-03-12 15:36 File: I:\Projects\23\11\0051\Maps\2011 Annual Report Figures\Fig13 PCP Distribution Lower Aquifer-2011.mxd User: cls



2,600 Naphthalene in ug/L

Groundwater Monitoring Stations

Surface Water Monitoring Stations

St. Regis Paper Co Site

City Dump Area

N

Feet

400 0 400 800 1,200 1,600

Meters

150 0 150 300 450 600

Figure 14

NAPHTHALENE DISTRIBUTION
LOWER AQUIFER
St. Regis Paper Company Site
Cass Lake, MN

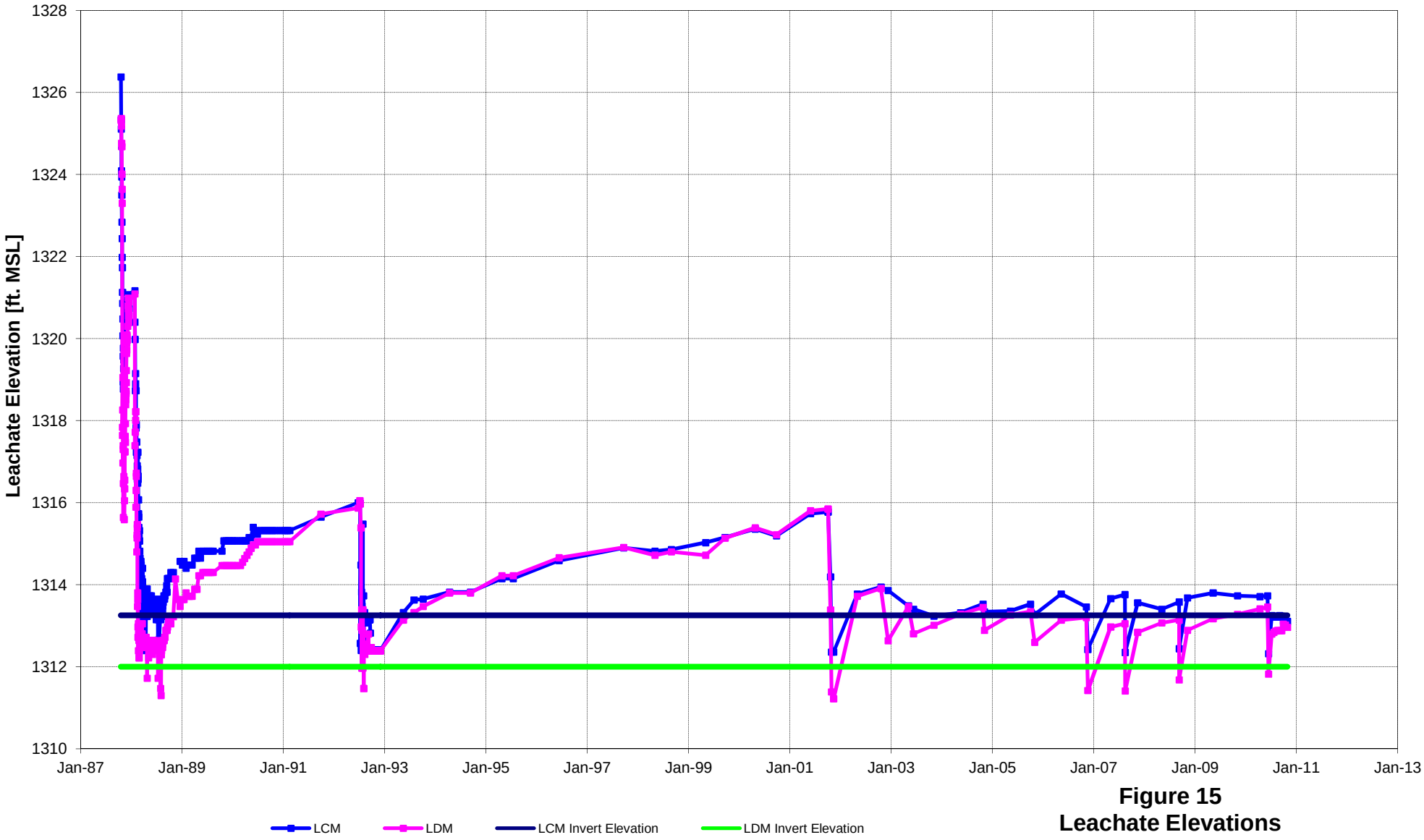


Figure 15
Leachate Elevations
OU2 - Containment Vault
St. Regis Paper Company Site

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